S. HRG. 107–905

COMPETITION, INNOVATION, AND PUBLIC POLICY IN THE DIGITAL AGE: IS THE MARKETPLACE WORKING TO PROTECT DIGITAL CREATIVE WORKS?

HEARING

BEFORE THE

COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

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COMPETITION, INNOVATION, AND PUBLIC POLICY IN THE DIGITAL AGE: IS THE MARKETPLACE WORKING TO PROTECT DIGITAL CREATIVE WORKS?

THURSDAY, MARCH 14, 2002

U.S. SENATE,
COMMITTEE ON THE JUDICIARY,
Washington, DC.

The committee met, pursuant to notice, at 10:02 a.m., in room SD–106, Dirksen Senate Office Building, Hon. Patrick J. Leahy, chairman of the committee, presiding.

Present: Senators Leahy, Biden, Feinstein, Durbin, Cantwell, Edwards, Hatch, Specter, and Brownback.

STATEMENT OF HON. PATRICK J. LEAHY, A U.S. SENATOR FROM THE STATE OF VERMONT

Chairman LEAHY. I appreciate you all being here. I just checked with Senator Hatch. He is delayed at another meeting and so we are beginning.

This is not a paid promotion for Amtrak, but Mr. Parsons is not here because he has been spending several hours trying to fly down from New York. Of course, he could have been here a couple of hours ago if he had taken the train on a foggy morning. That is just a personal thing.

When I first arrived in the Senate, television broadcasts were no longer just in black and white. Record players had high fidelity and the excitement of stereophonic sound. The personal computer, e-mail, high-definition television, CDs, DVDs, wireless communications devices and the Internet were yet to be released and now they are among our most ubiquitous tools. We talk to our friends, we use in our work, we keep in touch with our families, we listen to music, we watch a movie, we play a video game, and all of it is almost like second nature.

Each new tool has spawned new opportunities, entirely new industries, new ways to package and sell products, and new ways for consumers to enjoy copyrighted works. It is no surprise that the intellectual property generated in this country is an economic engine that is the envy of the world.

I would note that in the New York Times this morning Amy Harmon has an excellent article which actually covers much of what we are talking about—"Piracy or Innovation: Hollywood Versus High-Tech," with a picture of Stephen Jobs and Michael Eisner on

it. I am going to put that in the record because it so well spells out and encapsulates some of the debate going on.

There have been hearings recently in the Commerce Committee. I agreed with some of the things that the movie industry, Mr. Eisner and Mr. Valenti said, and I agreed with some of the things that the high-tech industry said. But I had significant disagreement with some of the things that Mr. Eisner and Mr. Valenti and some of the high-tech people said.

I mention this because it points up the differences of opinion in both the members of the Senate and within the various industries. As the article by Ms. Harmon points out, there are these differences. I say this because until the differences are resolved, certainly no legislation will pass this year. I hope everybody will understand that. Those who have to advise their clients, you can advise them without a lot more consensus. No legislation will pass this year.

The entertainment industry certainly has not fully made their case, but the high-tech industry hasn't either. And if you have a case where the cases haven't been made definitively, then I don't think the Congress can act.

The challenge of protecting music and motion pictures and sound recordings and computer software and other copyrighted works in digital formats has been the focus of the Judiciary Committee's sustained attention over the past few years. I have worked in close partnership with Senator Hatch and other members of this committee to keep our copyright laws up to date.

We want to protect the rights of creators. We also want to ensure that consumers enjoy a vast selection of new and different educational, entertainment, and other copyrighted products. We also appreciate, having focused on these issues for so long, that new technological developments pose new challenges about how to protect copyright works and create new business models to deliver those products to customers securely, and so forth.

New technologies often initially at least appear to trump intellectual property protection, but we have also found in the end they many, many times open new opportunities for artists, new choices for consumers, and often business models have to change accordingly. Protecting intellectual property, which has been within the jurisdiction of this committee since establishment in 1816, under another Vermonter as chairman, involves far more than arcane legal issues and requires a careful balance among the rights and interests of consumers, creators and innovators.

We were well aware of these new challenges in 1998 when Senator Hatch and I worked closely together on the Digital Millennium Copyright Act, the DMCA, to advance the goals of protecting digital copyrighted works and promoting the development of innovative technologies.

At the time, this new law was praised by Jack Valenti, of the Motion Picture Association of America. Mr. Valenti is one of the most respected voices up here on Capitol Hill and he said that "offering intellectual property the full weaponry of the law to protect voyages in cyberspace from thieves who have previously determined that stealing creative works is very rewarding and very low risk."

A core provision of the DMCA barred the unauthorized circumvention of technological measures used effectively by content owners to prevent unauthorized access to copyrighted works. It left to the private sector the important decisions of what technological protection measures to develop and use to protect digital works or whether to use any protection measure at all.

Technology has been the bane of content owners who are rightfully dismayed at the rampant online piracy of valuable works. I can't overemphasize how concerned all of us are here to think of people with copyrighted works that are stolen. But technology has also been pivotal to their protection. Since passage of the DMCA, great progress has been made to develop technical tools to protect and manage digital rights.

Multi-industry groups involving technology companies, consumer electronics companies, move studios and other content owners have developed technologies to protect digital content delivered to consumers on DVD and CD, over satellite, cable and broadband systems, and over the Internet.

Content owners are using these new digital rights management tools to develop and experiment with new business models for delivery of content to consumers. In the past few months, new sites like Pressplay and Musicnet have offered legitimate sources for Internet users and music lovers to access music online, protected by digital rights management technology that has been chosen and suits the needs of the owners. Today, we are going to see Mr. Taplin's Web site for consumers to enjoy video on demand, also protected by digital rights management tools that fit his business model and protect the movies from unauthorized copying.

But it is not a perfect world, and three significant gaps in protection of digital works remain. First, movie and TV programming owners are concerned about the theft of their digital works distributed in unprotected over-the-air broadcast, the so-called "broadcast hole." This gap in protection has important policy implications, since the lack of copy protection for digital broadcasts poses the risk that high-quality, digital video content will only be available on cable or satellite, where digital rights management technology is available.

Some content owners have warned that this could lead to a decline in high-quality content available on free over-the-air terrestrial broadcasts. The same multi-industry group that successfully developed the copy protection system used on the DVD is working on technical specifications for a "broadcast flag" that adds bits to broadcasts to prevent redistribution online.

Second, content owners are concerned about the audio-visual content delivered "in the clear" to the analog sets that are a staple in American households. They are concerned about them being converted into unprotected digital format and posted on the Internet for free downloading. The most promising technical solution for this so-called "analog hole" appears to be watermarking copy control technology, and there have been a lot of multi-industry meetings on that.

Finally, all content owners are concerned about peer-to-peer distribution services that allow the downloading of vast selections of valuable content for free. The hard reality is that unless the con-

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Finally, all content owners are concerned about peer-to-peer distribution services that allow the downloading of vast selections of valuable content for free. The hard reality is that unless the con-

tent is protected at the outset of the distribution chain, I am not aware of any easy technical solution to stop online piracy over these systems, other than tough enforcement of the laws.

So despite the strides that have been made over the past few years to find technical solutions that protect digital works in a variety of distribution channels and forms, some are now telling the Congress that progress in finding technical solutions to the remaining gaps in protection are at an impasse. As a result, they are seeking congressional intervention to give the information technology companies a limited time to find solutions, or else turn the entire job of developing digital rights management systems over to a government agency. That strikes me as wrong-headed.

In an era when technology is changing so fast, to think that we are going to, by government fiat, determine what that is going to be, we will be back to the same kinds of things that slowed the development of good TV reception and a lot of other things.

As I cautioned when the Hatch-Leahy distance education bill passed last summer, the copyright owners are a diverse group and some may want more flexibility. A government-mandated technical standard may produce a one-size-fits-all technology that may not suit the purposes of all content owners and may end up stifling innovative new technologies and implementations. Such a technology will not pass the U.S. Senate. There is no guarantee that the government agency will select the best technology to become the American standard, or in any shorter time period than the voluntary, industry-led process currently underway.

America's creators, innovators and consumers have and will continue to gain a great deal if the private sector works cooperatively to ensure that digital content can be distributed efficiently and securely. In my view, the private sector is best situated to guarantee that innovation, both technological innovation and creative innovation, continues without limitation or inhibition.

I remember some of the communications systems that our Government has put together for everything from Air Force One on through, and great talk about the millions of dollars spent and good they were, and usually they were about one-quarter as good as what they could have bought off the shelf in any company in America.

Government regulators are simply not close enough to the marketplace to be in the best position to craft the kinds of standards that will protect the vital and vibrant asset that is given to consumers around the globe by America's entertainment and copyright industries.

So we will keep on working on this. Senator Hatch and I would ask that senior executives at media, information technology and consumer electronics companies get more involved in the discussions underway about digital rights management systems and make sure that the people participating in those talks meet on a regular basis. We urge you to make sure that they have the appropriate level of seniority, know-how and experience to keep the negotiations moving forward and not simply have negotiations for the sake of having negotiations.

You may want to have monthly conference calls with your peers, whatever works best, but have people that can actually give an an-

swer. I hope you will be in touch with each industry sector leader to make sure that we are doing something that is timely, consumer-friendly, technically feasible, and cost-effective. Ms. Rosen and Mr. Valenti and others have been briefing us about these discussions for years. I have taken part in some of them. I would hope you could send Senator Hatch and me regular updates on what you are doing.

We have set up a new page on the committee Web site to post these progress reports. You see them over on that screen, and I would hope that people would use them. It is called "Protecting Creative Works in a Digital Age" and it can be found at www.judiciary.senate.gov. Senator Hatch and I have worked hard on this and we want your comments.

For those are following this debate, we have also provided links to relevant legislation and committee hearings. We have an e-mail address where comments may be sent and we are going to post some of these comments. I am doing this to make this as available as possible, not just for those who are within this room, but whether they are sitting in Provo, Utah, or Bethel, Vermont, or anywhere else, they can do it.

[Information on the committee Web site follows:]

Judiciary Committee News
United States Senate
Senator Patrick Leahy, Chairman

Leahy, Hatch Join Forces To Create Online Site For High-Tech Issues

Judiciary Committee Chairman Patrick Leahy and Ranking Republican Orrin Hatch have developed a Web site (http://judiciary.senate.gov/special/feature.cfm) for members of the technology community, the media and the general public to learn more about what the Committee is doing on the issues of intellectual property and technology policy.

On this site visitors will be able to:

- Research the law;
- Review relevant hearing transcripts before the Committee;
- Find other helpful resources to learn more;
- Contribute to an ongoing dialogue and share views on this issue.

Leahy and Hatch have worked in a non-partisan manner to craft copyright policies that advance the complementary goals of protecting copyrighted works, serving consumers and the public interest, and promoting the development of innovative technologies.

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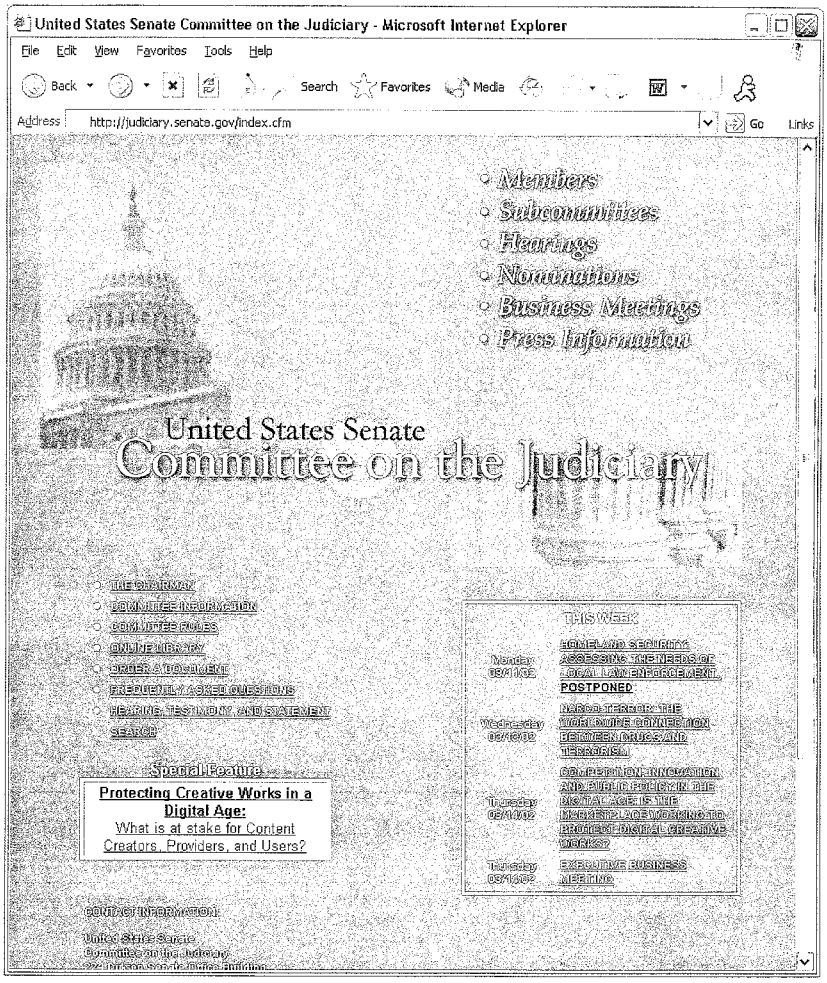
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What is at stake for Content Creators, Providers, and Users?
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POSTPONED
Wednesday 09/18/02
NARCO-TERROR: THE WORLDWIDE CONNECTION BETWEEN DRUGS AND TERRORISM
Thursday 09/19/02
COMPETITION, INNOVATION, AND PUBLIC POLICY IN THE DIGITAL AGE: IS THE MARKETPLACE WORKING TO PROTECT DIGITAL CREATIVE WORKS?
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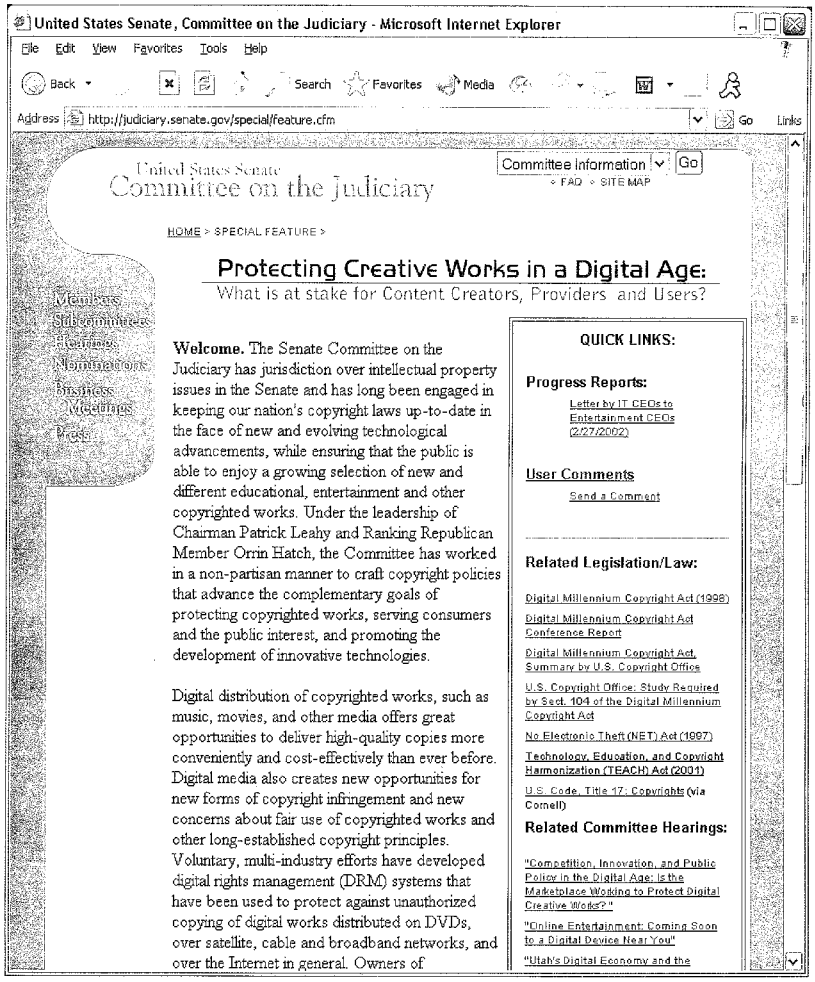
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Protecting Creative Works in a Digital Age:
What is at stake for Content Creators, Providers and Users?
Welcome. The Senate Committee on the Judiciary has jurisdiction over intellectual property issues in the Senate and has long been engaged in keeping our nation's copyright laws up-to-date in the face of new and evolving technological advancements, while ensuring that the public is able to enjoy a growing selection of new and different educational, entertainment and other copyrighted works. Under the leadership of Chairman Patrick Leahy and Ranking Republican Member Orrin Hatch, the Committee has worked in a non-partisan manner to craft copyright policies that advance the complementary goals of protecting copyrighted works, serving consumers and the public interest, and promoting the development of innovative technologies.
Digital distribution of copyrighted works, such as music, movies, and other media offers great opportunities to deliver high-quality copies more conveniently and cost-effectively than ever before. Digital media also creates new opportunities for new forms of copyright infringement and new concerns about fair use of copyrighted works and other long-established copyright principles. Voluntary, multi-industry efforts have developed digital rights management (DRM) systems that have been used to protect against unauthorized copying of digital works distributed on DVDs, over satellite, cable and broadband networks, and over the Internet in general. Owners of
QUICK LINKS:
Progress Reports:
Letter by IT CEOs to Entertainment CEOs (2/27/2002)
User Comments
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Related Legislation/Law:
Digital Millennium Copyright Act (1998)
Digital Millennium Copyright Act Conference Report
Digital Millennium Copyright Act, Summary by U.S. Copyright Office
U.S. Copyright Office: Study Required by Sect. 104 of the Digital Millennium Copyright Act
No Electronic Theft (NET) Act (1997)
Technology, Education, and Copyright Harmonization (TEACH) Act (2001)
U.S. Code, Title 17: Copyrights (via Cornell)
Related Committee Hearings:
"Competition, Innovation, and Public Policy in the Digital Age: Is the Marketplace Working to Protect Digital Creative Works?"
"Online Entertainment: Coming Soon to a Digital Device Near You"
"Utah's Digital Economy and the

[The prepared statement of Senator Leahy follows:]

STATEMENT OF SENATOR PATRICK LEAHY

When I first arrived in the Senate television broadcasts were no longer just in black and white and record players had high-fidelity and stereophonic sound. The personal computer, email, high-definition television, CDs, DVDs, wireless communications devices and the Internet were yet to be created. Now these are among the ubiquitous tools we use today to do our work, talk to friends and family, listen to music, watch a movie, or play a video game. Each new tool has spawned new opportunities, entirely new industries, new ways to package and sell products, and new ways for consumers to enjoy copyrighted works. It is no surprise that the intellectual property generated in this country is an economic engine that is the envy of the world.

Challenge of New Technologies. The challenge of protecting music, motion pictures, sound recordings, computer software and other copyrighted works in digital formats has been the focus of the Judiciary Committee's sustained attention over the past few Congresses. I have worked in partnership with Senator Hatch, and other Members of this Committee, to keep our copyright laws up to date to protect the rights of creators and ensure that consumers enjoy a vast selection of new and different educational, entertainment and other copyrighted products.

We appreciate, having focused on these issues for so long, that new technological developments pose new challenges about how to protect copyrighted works and create new business models to deliver those products to consumers securely, cost-effectively, and conveniently. New technologies may initially appear to trump intellectual property protection, but in the end they open new opportunities for artists and new choices for consumers. Protecting intellectual property, which has been within the jurisdiction of this Committee since its establishment in 1816, involves far more than arcane legal issues and requires a careful balance among the rights and interests of consumers, creators, and innovators.

DMCA. We were well aware of these new challenges in 1998, when I worked closely with Senator Hatch on the Digital Millennium Copyright Act, "DMCA," to advance the complementary goals of protecting digital copyrighted works and promoting the development of innovative technologies. At the time, this new law was praised by Jack Valenti of the Motion Picture Association of America as "offering intellectual property the full weaponry of the law to protect its voyages in cyberspace from thieves who have previously determined that stealing creative works is very rewarding and very low risk." (Testimony before the Senate Foreign Relations Committee, September 10, 1998). A core provision of the DMCA barred the unauthorized circumvention of "technological measures" used effectively by content owners to prevent unauthorized access to copyrighted works. The new law left to the private sector the important decisions of what technological protection measures to develop and use to protect digital works—or whether to use any protection measure at all.

DRM Progress. Technology has been the bane of content owners, who are rightfully dismayed at the rampant online piracy of valuable works, but it is also pivotal to their protection. Since passage of the DMCA, great progress has been made to develop diverse technical tools to protect and manage digital rights in various media. Multi-industry groups, involving technology companies, consumer electronics companies, movie studios and other content owners, have developed technologies to protect digital content delivered to consumers on DVD and CD, over satellite, cable and broadband systems, and over the Internet.

Content owners are using these new digital rights management tools to develop and experiment with new business models for delivery of content to consumers. Just in the past few months, new sites like Pressplay and Musicnet have offered legitimate sources for Internet users and music lovers to access music online—all protected by digital rights management technology that has been chosen and suits the needs of the owners. We will also see today Jonathan Taplin's Web site for consumers to enjoy video-on-demand, also protected by digital rights management tools that fit his business model and protect the movies from unauthorized copying.

DRM Gaps. This is not a perfect world, however, and three significant gaps in protection of digital works indisputably remain. First, movie and TV programming owners are concerned about the theft of their digital works distributed in unprotected over-the-air broadcasts—the so-called "broadcast hole." This gap in protection has important policy implications since the lack of copy protection for digital broadcasts poses the risk that high-quality, digital video content will only be available on cable or satellite, where digital rights management technology is available. Some content owners have warned that this could lead to a decline in high-quality content

available on free over-the-air terrestrial broadcasts. The same multi-industry group that successfully developed the copy protection system used on the DVD, is working on technical specifications for a "broadcast flag" that adds bits to broadcasts to prevent redistribution online.

Second, content owners are concerned about the audio-visual content delivered "in the clear" to the analog TC sets that are a staple in American households being converted into unprotected digital format and posted on the Internet for free downloading. The most promising technical solution for this so-called "analog hole" appears to be watermarking copy control technology—and this solution is also the subject of multi-industry meetings.

Finally, all content owners are concerned about peer-to-peer distribution services that facilitate the downloading of vast selections of valuable content for fee. The hard reality is that unless the content is protected at the outset of the distribution chain, there is no easy technical solution to stop online piracy over these systems, other than tough enforcement.

Problems with Legislated Mandates. Despite the great strides that have been made over the last few years to find technical solutions to protect digital works in a variety of distribution channels and forms, some are now telling the Congress that progress on finding technical solutions to the remaining gaps in protection are at an "impasse." (Testimony of Peter Chernin, at hearing before Senate Commerce Committee, February 28, 2002, at p. 91; testimony of Michael Eisner, *id.,* at p. 92). As a result, they are seeking congressional intervention to give the information technology companies a limited time to find solutions or else turn the entire job of developing digital rights management systems over to a government agency. This strikes me as wrong-headed.

As I cautioned when the Hatch-Leahy distance education bill, the TEACH Act, S. 487, passed the Senate last summer, "copyright owners are a diverse group, and some owners may want more flexibility and variety in the technical protection measures available for their works than would result if the government intervened too soon and mandated a particular standard or system." (Congressional Record, June 7, 2001, S. 5990). A government-mandated technical standard may produce a one-size-fits-all technology that may *not* suit the purposes of all content owner and end up stifling innovative new technologies and implementations. There is no guarantee that the government agency will select the best technology to become the American standard or in any shorter time period than the voluntary, industry-led process currently underway, to the long-term disadvantage of both content owners and technology companies.

Marketplace Solutions. America's creators, innovators and consumers have and will continue to gain a great deal if the private sector works cooperatively to ensure that digital content can be distributed efficiently and securely. Deployment of effective anti-piracy tools to fill the remaining gaps in coverage is critically important because the absence of such tools may affect the development of new product offerings—whether for broadband or consumer products.

In my view, the private sector is best situated to guarantee that innovation—both technological innovation and creative innovation—continues without limitation or inhibition. Government regulators are simply not close enough to the marketplace to be in the best position to craft the kinds of robust standards that will protect the vital and vibrant asset that is given to consumers around the globe by America's entertainment and copyright industries.

Monitoring of Progress by Committee. These are important issues, and this Committee will remain fully engaged, as we have in the past, in protecting the rights and interests of content owners and consumers, while fostering technical innovation. To assist us in that effort, Senator Hatch and I would ask the senior executives at media, information technology, and consumer electronics companies to get more involved in the discussions underway about digital rights management systems, and make sure that the people participating in those talks meet on a regular and frequent basis. We urge you to make sure that they have the appropriate level of seniority, know how and experience to keep the negotiations moving forward in a productive, timely manner. For example, you may want to have a monthly conference call with your peers where you talk about the progress of the various working groups—and help break through the inevitable roadblocks. We hope that you will also be in touch with each industry sector leader to make sure that solutions are not only consensus-based, technically feasible and cost effective, but also timely and consumer friendly. Jack Valenti, Hilary Rosen and others have been briefing us about these discussions for years. We would ask that leaders from the content and information technology companies send us regular updates every two months to keep us posted on the state of the negotiations for finding solutions to the remaining

gaps in protection for digital content, and how the interests of consumers are being addressed.

These progress reports are important not just for this Committee but for many stakeholders, including Internet users and consumers of digital content. The Committee has set up a new page on the Committee Web site to post these progress reports. The page is called "Protecting Creative Works In A Digital Age: What Is At Stake For Content Creators, Purveyors and Users?" It can be found at [www.judiciary.senate.gov]. For those who are following this important debate, we have also provided links to relevant legislation and Committee hearings. We hope to hear from many stakeholders, consumers and Internet users on this issue and, particularly, as progress reports are made and posted. We will have an email address where comments may be sent and portions of those comments will be posted for perusal on the site.

We appreciate that complicated problems do not lend themselves to quick and easy solutions, and we stand ready to help move these private sector discussions to a timely conclusion. We know that legislation may be necessary to implement some of the intra-industry agreements that are reached and we want to be in a position to move promptly and thoughtfully when the time is ripe.

Chairman LEAHY. I turn to Senator Hatch and ask him for his comments.

STATEMENT OF HON. ORRIN G. HATCH, A U.S. SENATOR FROM THE STATE OF UTAH

Senator HATCH. Well, thank you, Mr. Chairman. We have long worked together on legislation dealing with copyright and other intellectual property laws. We have all worked hard to balance the interests, and done so in a bipartisan fashion. You have cited the landmark Digital Millennium Copyright Act, which clarified the application of copyright law to the digital world in a way that fostered the growth of technology and which sets the floor upon which today's discussion really builds.

Our intellectual property laws govern property rights that inhere in the creative work we enjoy over the Internet, over the television, radio, cable and satellite systems. Copyright and other intellectual property laws give creators the incentive and protection they need to make their movies and music and stories and artworks available to us.

In making intellectual property policy, technology continues to challenge us, but we have attempted to meet those challenges. In passing the Digital Millennium Copyright Act just three years ago, we sought to ensure that copyright owners would make their works available on the Internet by clearly applying the protection of copyright law to the digital world in a way that also allowed technology to grow and develop.

Our committee also worked with the Commerce Committee to take advantage of new technology to make local television signals available over satellite in the Satellite Home Viewer Improvement Act—an advantage I hope will not be undermined by anticompetitive mergers.

This hearing today discusses issues related specifically to additional technological protections for copyrighted content transmitted over digital networks and the Government's role. There are precedents for legislation in this area. Specifically, the Audio Home Recording Act required all home audio recording device makers to conform to the Serial Copy Management System, which allowed unlimited first-generation copying of music but stopped second-generation copying. The Digital Millennium Copyright Act included a

provision adopting the so-called Macrovision standard for copy protection of analog videotapes in all video cassette recorders, while ensuring that certain programming continues to be freely available for copying by television viewers.

The lesson, I think, is we have been here before and we have met the challenge when technology has thrown down the gauntlet. I think it is your preference, however, as well as mine, that the market work these issues out, if it can. On the other hand, when it cannot, Congress can facilitate a resolution that ultimately benefits consumers and creators, the studios, and technology companies.

With respect to market resolution of the specific issues at hand, there seems to be something approaching consensus on the technology and use of the so-called "flag" in digital broadcasts that can allow digital home recording of broadcast programming, but will stop further redistribution of those recorded programs outside the home network to the general public via the Internet.

Plugging the "analog hole," as it is commonly referred to, is more problematic, but likely solvable. This is the problem that occurs when a digital file is converted to an analog signal for viewing or listening and loses any digital instructions that may have been included in the original digital packet. Finally, there is almost no consensus on a technical or policy front with regard to Internet file-sharing or general Internet distribution.

While philosophically we agree that the market, with its business and technical expertise, ought to try to solve these issues, I think there is a useful role for Congress, too, in reaching or implementing creator- and consumer-friendly agreements in at least three ways.

First, we can help set deadlines and push for agreement where there may be deadlocks that ultimately hurt both artists and consumers. Second, we can help set balanced objectives and priorities. And, third, we can codify consensus policies or minimum standards.

The growth of broadband opportunities for many of our constituents is stalled, and it may be helpful for Congress to encourage all parties to get agreement when it is best for the markets, consumers and artists. I also believe it is necessary for Congress to help ensure that consumer expectations will be more fully respected than they might otherwise be in private agreement.

For example, I would like to be certain that as new controls are placed on digital content that consumers are allowed to make legitimate personal copies, as they have done before, and use those copies as they have been accustomed to doing. Music fans want to take their music with them in the car, on the beach, to a party. Movie and sports fans want to watch on their big screens, not just on their computer monitors.

Now, let me state clearly as we discuss consumer rights and expectations that we all should not forget that consumers will have nothing to enjoy if there was not the incentive for artists and creators to develop entertainment content and share it with us.

Moreover, as the HDTV market has demonstrated, without digital content there will not be sales of digital electronic devices. As with many things, this is a balancing act, but if there is one thing Congress does regularly, it is balance interests, sometimes not very well.

Consumers want rich content. To get the creators of that rich content to share it in emerging interactive digital systems, they must be assured that destructive misuse will not undermine their businesses. On the other hand, consumers also want to use and enjoy that content with the advanced ease, superior quality, and enhanced enjoyment that the new digital systems will allow.

In another context, Mr. Chairman, I have said that if the media and technology companies will focus on the people at the two ends of their networks—the artists and the audience—they can benefit for everybody from end to end. We can learn from the lessons of the Napster case. This has been a cautionary tale to those who would leave the issues to the law of the jungle and protracted litigation.

I should also say that you certainly don't want litigation right now with our courts literally half empty in certain circuits. I just couldn't resist.

Chairman LEAHY. I agree with you. I wish you had allowed some of those nominees to go through during the six years you were chairman.

Senator HATCH. We never had a situation as bad as it is now.

I should also say you certainly don't want litigation right now. This is something I would like to see us avoid. But I sincerely hope the ongoing music industry conflicts will not be replicated in the video context, which has been avoided to some degree by the slow rollout of broadband.

However the issues of the Napster case are resolved—I have been calling for years for a market-based, fair resolution to those issues—that case may suggest that some involvement by Congress is necessary to ensure that technology and intellectual property work together for consumers and creators.

Finally, we must remember that the Internet is international. As ranking member of the International Trade Subcommittee of the Finance Committee, I know too well that intellectual property is our number one export, and we need to do all we can to ensure that our trading position remains strong and that our trading partners work with us in using digital networks as avenues for legitimate trade. We must continue to ensure that foreign countries will provide adequate and effective protection and that their laws are not eroded as they face new challenges posed by new technologies.

In conclusion, I also want to reemphasize my and Chairman Leahy's interest, and others on this committee, in call for ongoing informational updates from the negotiating parties and for input from everyone who has an interest in these issues via our Web site. I want to encourage the parties—the content community and the information technology community—to continue and redouble your efforts to find common ground. These are complex issues and with the right resources I am confident that you can resolve all of these problems.

I think it would be helpful for us to get a variety of views and regular updates on the ongoing private discussions. I should say that if this drags on to the point where it hurts intellectual property, creators and consumers, then I think we here on the committee will introduce balanced legislation.

So, Mr. Chairman, I look forward to the testimony today and I want to thank all of those who are testifying.

Chairman LEAHY. Thank you very much.

Our first witness will be Craig Barrett. He is Intel's chief executive officer. Mr. Barrett had a very distinguished career as a teacher, an author and academic. I understand, Mr. Barrett, that you are the author of a college textbook on materials science that is used today throughout the country. So we feel very fortunate to have you here, and please go ahead. Your whole statement, of course, will be made part of the record, but go ahead and hit us with the points you want us to remember.

STATEMENT OF CRAIG R. BARRETT, CHIEF EXECUTIVE OFFICER, INTEL CORPORATION

Mr. BARRETT. Certainly, Senator. If I had a digital recorder here today and I could have recorded yours and Senator Hatch's comments and then obtained your copyright license to play it back into the record, that would suffice to give my present position.

I really have four points I want to make. First of all, the high-tech or information technology industry does care about intellectual property and copyrighted content. It is the basis of our industry, it is the lifeblood of our industry.

Second, the industries—the IT industry, consumer electronics industry and the content industry—are working together in a voluntary, consensus fashion to create technological solutions to copyright protection. I think that that process can continue effectively without broad Government mandates and will be the most effective way to move the technology forward and to protect content.

Third, I think you will continually hear that the basis for content protection is really protection at the source. Once content is delivered in a free, streaming digital format into the Internet, it is very difficult to recall it or protect it, and I will make a few comments about that later on.

Fourth, I completely agree with both of your comments that, in fact, this is a complicated issue where we have to worry about protecting intellectual property as well as protecting the rights and expectations of consumers as we move from an analog to a digital world. So there has to be some balance between content protection, copyright protection and consumer expectations, where we have educated consumers in the analog world as to what to expect. And now we move into a digital world and they probably carry the same expectations with them.

Just a very few expansive comments on those four points. First, the high-tech industry probably loses four times the dollar content that the content industry or the movie industry and the music industry loses on an annual basis to piracy. The estimates are $11 to $12 billion a year for the high-tech industry, primarily in software licenses which are pirated. That compares to about $3 or $3.5 billion for the content community. I think that gives a relative measure of how important it is to our industry to protect intellectual property.

Second, the IT industry has devoted an extensive amount of time, hundreds of millions of dollars, hundreds of man-years of ef-

fort, working with the consumer electronics industry and the content industry to promote technical solutions to copyright protection.

I have in front of me, if you would care to look at them, about three or four inches of technical specifications which are in the industry. These cover DVD audio, recordable media, and protecting content over home networks. You can go into any consumer electronics store such as Circuit City today and buy either content or equipment which conforms to these specifications. So over the last six years, we have been doing much more than just talking about the issue. Technical solutions are in the marketplace today.

The basis for these technical specifications are really protection of content at the source, and then simply not passing content on to equipment or facilities that do not respect the rights of the content owners. So if the equipment doesn't honor the rules, then the content doesn't move.

In the six years that the copy protection working group, comprised of the IT, consumer electronics and content industries, has been working, we have addressed many issues. As you pointed out accurately in your opening statement, we are working on terrestrial high-definition TV broadcasting and a probable solution there, including a flag to monitor that content and to protect that content. On solving the analog hole, we expect to have solutions proposed and tested within the next few months. And perhaps the biggest issue is the one you mentioned, which is the peer-to-peer issue of moving unprotected content from computer to computer. I will make a few comments about that later on.

This morning, I am pleased to be seated next to Mr. Parsons' chair, and hopefully he will show up in a few minutes. Being seated next to Dick is important from the standpoint that AOL Time Warner and Intel have worked very closely together in terms of technological protection of content over the years.

We firmly believe that copyright technical solutions are forthcoming from the technical working group. We firmly believe that in some instances there very well need be narrow, mandated Government involvement here, such as the ability to encrypt or put a flag in digital TV signals. But primarily we believe the consensual process among our industries is working, as evidenced by the technology we have already put in the marketplace.

I would like to make a few comments about the peer-to-peer piracy issue. Again, the core issue here is protecting content at the source. It is very difficult to protect unencrypted content once it is just a digital stream on the Internet, and completely stopping the piracy of unprotected content is very, very difficult for the mere reason that it is impossible to determine the difference between lawful content—home movies, home audio—on the Internet and copyrighted content on the Internet.

There is no solution to this problem today, although the industry is working toward possible solutions. I believe there is no silver bullet here. It will be a combination probably of legal solutions, business solutions, technology solutions and legislative solutions.

There have been suggestions made that digital devices could continuously monitor content streaming on the Internet and only respond or only play protected copyrighted content back, authorized content. I think this solution is a bit simplistic. As I mentioned,

there is no way to tell the difference between unprotected copyrighted content and legal home content once it is nothing more than a stream of ones and zeroes on the Internet.

Chairman LEAHY. If people think their computers crash now——

[Laughter.]

Mr. BARRETT. Let alone that, but the mere prospect of trying to monitor all the content that flies on the Internet, I think, carries with it some severe limitations. There is a technical limitation. This would mean you would have to have in digital format all the copyrighted content in the world. You would then have to compare the streaming information on the Internet to that database of copyrighted content, and once you found a match do something with it. I am not sure what you would do once you found it. You could deny service.

Chairman LEAHY. I think you go back to what you said earlier that if you can't protect content at the source, then——

Mr. BARRETT. It is a tough issue if you don't protect it at the source.

Chairman LEAHY. I might want to come back to that more. I just want to make sure we give everybody a chance to testify while all members are here, and I am going to come back to the points you were making and I do want to go to Mr. Taplin.

Mr. BARRETT. Certainly.

[The prepared statement of Mr. Barrett follows:]

STATEMENT OF CRAIG R. BARRETT, CHIEF EXECUTIVE OFFICER, INTEL CORPORATION

I appreciate the opportunity to discuss the IT industry's work to create effective tools to protect copyrighted digital content. In sum, my message is this: we care about piracy, we are providing solutions to solvable problems, and those solutions come best through a voluntary, consensual process—not regulatory mandates.

IT is working to protect content and reduce piracy

Some in the content community have suggested that the IT industry does not care about reducing piracy of copyrighted works, that we actually promote piracy to grow our industry. Nothing could be further from the truth. We place the highest value on protecting intellectual property, and have worked in countless forums over decades to support and defend IP rights. We know that without adequate protection, content owners will not make their content available over digital networks. Piracy for the high-tech industry means losses of about 12 billion dollars a year; for the content owners, it is about 3.5 billion a year. It is a plague for all of us. That is why our industry has spent hundreds of millions of dollars of our own money, and has devoted the time of hundreds of engineers, to developing solutions.

Good progress has been made

This work—carried out in close cooperation with Hollywood studios and consumer electronics companies—has now extended over six years. It has resulted in new technologies for the protection of content made available through DVD'S, pre-recorded audio media, and "secure network" systems such as cable and satellite. We are moving forward with specifications for protecting over-the-air digital television broadcasts, which we expect to be finalized around the end of this month. These new tools, when used properly, protect content "at the source"—when it is created—and prevent piracy in any environment, including the Internet. Content is simply not passed on to devices that don't honor the rules. These technologies are available and in use today to protect content delivered to home networks.

In addition, we are now jointly studying watermark technologies that may help with the so-called "analog hole", which can be generally understood as analog outputs on consumer electronic devices. Content ported through these outputs could be reconverted to unprotected digital format. Watermarks may provide a means to ensure that protection rules survive as content transitions to analog, outputs.

I want to emphasize that, during these six years of work, there has not been a single protection issue put forward by the content community that we have not re-

sponded to with solutions. And those solutions are successful: many of our partners in this work—such as AOL-Time/Warner, who I am pleased to appear with today—are moving forward to take advantage of these new protection technologies to bring protected digital products to market.

AOL-Time/Warner and Intel are in agreement that where there are identifiable, effective solutions to specific problems that would require limited government action to implement—as in the case of digital television broadcasting—then limited directives have a useful and productive role to play. As Dick has stated, we are developing a joint statement of principles on these points. But consensus here is the key.

Peer to peer: IT cannot police the Internet

As I have said, the solutions we have developed thus far work when the content is protected from the source. However, when we look at the explosive growth of peer-to-peer networks, combined with the ready availability of unprotected content, we are faced with a wholly different problem. Completely stopping the piracy of *unprotected* content—whether it consists of older creative works that have already been uploaded to computers, movies recorded off a theater screen with a camcorder, or copies of new films stolen from studios by employees—is beyond the reach of what known technologies can do. No single solution—technical, legal, legislative, or business—exists to fully address this form of piracy.

Some content providers suggest that all digital devices could continuously examine all data downloaded from the Internet and analyze it to sort out copyrighted from uncopyrighted material. We don't think this would work. First, once unprotected content is digitized, absent a watermark that can carry embedded usage rules (which must be attached to the source file), your home movies look no different to a computer than a Hollywood film would. Thus, this approach would require either forbidding access to unprotected content by the PC—including home movies—unless you submit your home movies for review and certification; or, it would require the creation of an online database of copyrighted works against which suspect content could be compared. This would be analogous to the creation of a worldwide fingerprint database, only orders of magnitude more difficult.

Beyond these considerations, there are serious consumer privacy concerns about any technology that would "look" at everything you send or receive over the Internet or require review and approval for home movies and other personal content. Our company suffered a substantial consumer backlash from a much more benign technology, the processor serial number, because of the possibility of consumers being tracked through that identifier. Here we are talking about actually screening transmitted content without consent, which in other contexts we would consider a gross invasion of privacy.

I mention these difficulties not as a justification for piracy, but simply to illustrate the complexity of the problem. Solving it will require hard work from all relevant industry sectors.

Broad government mandates are not a solution

Nevertheless, there are content providers who urge upon us a pervasive system of government regulation to implement these ideas, and advocate the development of an "open", mandatory standard that would implement this Internet surveillance. It is suggested that this surveillance could be accomplished with an "eighty cent chip".

This is pie-in-the-sky, back-of-the-envelope cost estimating that has no relation to the realities of our industry. There are at least three fundamental issues, which are ignored in this scenario.

First, as I have said, their is no known technical solution to the peer-to-peer piracy of unprotected content, and thus direct costs of any future solutions cannot be estimated.

Second, broad regulatory mandates would place all of the monetary, product performance costs, and loss of consumer goodwill on the shoulders of the IT industry. In the end, regulatory mandates for an unspecified technology of unknown cost amounts to a compulsory license imposed upon the IT industry.

Third, and most important, there are the hidden costs of slower innovation, diversion of investment capital, and lost ground in the global race for technological leadership that would follow from the insertion of a bureaucratic process into our product design work. **These are costs that we cannot afford to pay.**

The DMCA: balancing copyrights, innovation, and consumer expectations

In short, our message is that the marketplace has largely worked, in precisely the manner envisioned by the DMCA. The DMCA generally rejected mandates in favor of consensual standards. It also granted powerful new enforcement tools to content

owners to give strength to the technical solutions arrived at in inter-industry efforts. Having been given this direction by Congress, we in the IT industry have come through with effective content protection tools that are available today, at reasonable cost—certainly for new digital media products.

In all of this, however, we cannot lose sight of the consumer. Pursuit of maximum control is not the highest value; there are other values at stake, most importantly consumers' expectations for *lawfully* using *both* technology *and* content for personal use. The challenge is to permit the consumer flexibility and portability in his or her home and personal environment, yet prevent unlawful reproduction and redistribution. Balance is the key, but finding that balance can at times be difficult. Consider these examples:

- **"Cul-de-sac" technologies** that do not allow content to be played on different digital devices. I have here an example of that: the "SACD", which is not playable in a PC. This is designed to thwart the customer's ability to make playlists of individual songs or download the songs to a portable player in a protected environment, and it amounts to a limitation on the right to make audio copies, which is recognized in the law.
- **The accommodation of legitimate fair use of content.** One good example of this problem, which this Committee has grappled with, is fair use of content in the distance-learning environment.

Congress needs to give careful consideration to the question of how consumer expectations for using technology and content, which developed in an analog era, will be preserved in the digital age.

Chairman LEAHY. Jonathan Taplin is the CEO of Intertainer, which offers broadband video on demand film services in 35 markets, including Vermont and Utah. In some ways, I would like to hear about Mr. Taplin's earlier career when he was road manager for Bob Dylan and The Band, but I would suspect that that would have to be the source of an off-the-record hearing.

Mr. TAPLIN. With pleasure.

Chairman LEAHY. Mr. Taplin, go ahead.

STATEMENT OF JONATHAN TAPLIN, CHIEF EXECUTIVE OFFICER, INTERTAINER, INC.

Mr. TAPLIN. Thank you, Mr. Chairman and members of the committee. I really welcome the opportunity to come before you this morning to discuss the protection of copyrighted works in a world of digital media.

I have been fortunate enough since I graduated from Princeton in 1969 to work with a lot of great artists, including Bob Dylan and The Band, George Harrison, Martin Scorsese, Gus Van Sant, Wim Wenders, the Coen Brothers, and so I really take seriously the notion that protection of artists' rights are important.

Because I have been around the entertainment business for quite a long time, I have seen the entertainment companies say that the audio cassette was going to kill the record industry, that the video cassette was going to kill the movie industry, and now that digital distribution of content is going to kill both industries.

I must say that the company I lead today, Intertainer, started in 1996 with the notion that digital broadband networks would be the conduit for on-demand delivery of the best of American and world culture into the home. We have been able to realize that vision and in the last few years we have, in fact, earned the trust and licensed content from many of the leading Hollywood media companies.

Even though in the last year some of the major studios have withdrawn these content licenses, today Intertainer's service features content from 65 different media companies, including major

studios such as Warner Brothers, DreamWorks, MGM, and television networks such as NBC, ESPN, Discovery Channel, PBS, BBC and the A&E Network.

We have this content because the content owners trust us to protect it, and the content is all digitally encrypted at the source and protected by a commercially available digital rights management system that is part of the Microsoft Windows Media Player. A similar DRM system built by InterTrust is also offered with a real media player. It is my belief that continually innovating new DRM systems are being continually improved, including ones from Intel and other players in the world.

I think that the fact that every week my company gets brought a new DRM system, a new encryption technology, says that the technology industry is willing to spend the money to build these tools. The thing that is interesting is that they are continually getting better. In fact, the motion picture engineering group Ampeg has a new XRML interoperability standard that most of the major companies have signed on to. So I think there is continuous innovation in this world.

I think that the bigger problem for myself, my company and many people in this industry is that we have been told that broadband won't grow until content gets on the network, and so we have a kind of classic chicken-and-egg problem here.

The problem for me is not with content. We have over 70,000 hours of content that we can put out on the network, but it is more like if you imagine picking up your telephone and every other time you couldn't get a dial tone. That is equivalent to what is happening in broadband today. Essentially, networks are being oversubscribed, so that the average user has no idea of the quality of the service that he is getting.

So, for me, I need a service of 500 kilobits per second, and I will just quickly show you what it looks like at 500 kilobits per second. I will play a movie here off my service. I am asked to confirm the purchase and then I can take it to full screen. I need this 500-kilobits-per-second service and I need it to be consistent. If, on a bad night, a user gets 96K based on thinking that they have got a broadband service, that is a real problem.

I think the fact that less than 6 percent of the optical fiber that was laid down in the tech boom of the last four years is in use should concern not only investors in Cisco, Nortel, Lucent, and Intel, but also educators, medical professionals, and every artist interested in reaching an audience with film, a song, or a game.

With the right regulatory guidance, we could offer interactive DVD-quality video on demand service to almost every home and classroom in the country by the end of 2003. This service could retrain workers in their homes, provide inexpensive video conferencing, allow doctors to have access to specialists for consultation, and provide an open platform for the film makers and musicians of the country to reach their audience without having to pay most of their income to gatekeepers.

So in the end I am very hopeful and I have a lot of optimism that we will have—we have spent as a country $1 trillion on optical fiber and we are either going to use it or we are going to lose it. The fact that every third day some optical fiber company goes into

bankruptcy says to me that we have to figure out a way, having built the information highway, to put the on and off ramps onto it.

Thank you very much.

[Video shown.]

Chairman LEAHY. That was fascinating. What is the movie?

Mr. TAPLIN. It is called "Art of War." It is a Warner Brothers movie.

Chairman LEAHY. I just want to make sure I understand the technology. Is that movie being streamed out in real time or are you downloading it?

Mr. TAPLIN. We are using open IP networks, either DSL modems or cable modems, in college dormitories. We believe there are about 21 million computers that I would call residential computers—that is, excluding the office market—that have access to a potentially 500-kilobit or better network.

The problem is simply a matter of this over-subscription and it is a fairly simple issue. The networks are trying to sign on as many customers at $49.95 as possible without making the purchase of another optical fiber loop in the local loop.

Chairman LEAHY. Yes, that is a problem. In rural areas, it is a problem when they do the same thing on the satellites and you suddenly get overloaded.

Mr. TAPLIN. Yes, it is an over-subscription matter. I mean, we all know what happened on 9/11 in New York City. If everyone wants to pick up the phone at the same time, there is no phone service. The problem obviously with broadband is that is what happens every day.

[The prepared statement of Mr. Taplin follows:]

STATEMENT OF JONATHAN TAPLIN, CEO, INTERTAINER, INC.

Mr. Chairman, Senator Hatch, members of the committee, I welcome the opportunity to come before you this morning to discuss the protection of copyrighted works in a world of digital media. I have been fortunate enough in my career to work with many great artists and so I take seriously the responsibility of making sure that the artist profits from his efforts. I started out in 1969 after graduating from Princeton as the tour manager for Bob Dylan and The Band. I produced George Harrison's Concert For Bangladesh. I've produced films with Martin Scorsese, Gus Van Sant, Wim Wenders and The Coen Brothers and as an investment advisor I was involved in the two biggest media transactions of the 1980's: Disney and Viacom.

The company that I lead today, Intertainer, was started in 1996 with the notion that digital broadband networks would be the conduit for on demand delivery of the best of American culture into the home. My vision is to enable Americans to have instant access to the immense library of film, television and music content that this country's artists have been producing for decades. The early films of Charlie Chaplin; the gospel performances of Aretha Franklin; all the wonderful artistic work that formed my real education was waiting in dusty vaults to be digitized and experienced by a new generation. Over the last five years, we at Intertainer have in fact earned the trust of and licensed content from many of Hollywood's leading media companies. Today, the Intertainer service features content from 65 different media companies including major movie studios such as Warner Bros., DreamWorks and MGM and television networks such as NBC, ESPN, The Discovery Channel, PBS, The BBC, and A&E. In addition, we also feature concerts and music videos from all of the affiliate labels under the Warner Music Group and EMI banners. As you know, over the past several years these and other record companies have experienced indoctrination by fire in terms of digital piracy. But with Intertainer, Americans who have sufficient broadband connection speeds can watch recent theatrical releases, classic films, concerts, television shows and much more with a completely legitimate, secure service that offers an excellent user experience, as well as a new revenue stream for content owners. This unprecedented digital delivery of premiere

Hollywood content would only be possible if the content owners felt that their product was being rigorously secured and that the end-user was getting a high quality viewing experience. As you can see from this demonstration of the service, Intertainer represents the convergence of secure digital delivery and broadband connectivity to give American consumers a new way to control and enjoy their entertainment.

This content is all digitally encrypted and protected by a commercially available digital rights management system that is bundled into Microsoft's popular Windows Media Player. A similar DRM system built by Intertrust is offered with another leading digital media player from Real Networks. It is my belief that these and other DRM systems that are available and in use today are continually improving their encryption scheme and that they already provide artists and copyright holders with a powerful tool to sell their content in a digital world with a high degree of security. I don't believe that either Microsoft or Intertrust would argue that the DRM systems are absolutely uncrackable, but I do know that both organizations have been able to respond very quickly to attacks and change the encryption, thus rendering the hack unusable. In addition, my company is continuously exposed to a steady stream of entrepreneurs showing us new DRM products in development, which I believe is a strong indication that the traditional innovation that has come out of the US software industry will continue to develop more mature digital rights management products. The genius of the Digital Millennium Copyright Act is that it encourages this innovation while providing legal protection for the copyright holders.

I realize that there is considerable discussion going on in Congress about the need to legislate an open-standards digital rights management solution, but it is my strong belief that Congressional intervention is not necessary. As I've outlined, the marketplace is already working aggressively to meet the need for effective DRM solutions. A government-mandated solution would take considerable time to develop and implement, and in the meantime, content owners may seize the opportunity to withhold content from legitimate services such as mine until the new standard is adopted. Certain media CEO's will tell you that unless you mandate a foolproof copy protection system, they will never put their content on digital broadband networks. I have another point of view on this. Historically, open standards solutions are behind the curve in terms of attracting the capital and talent to keep them bullet proof. Private companies, in the interest of competition and innovation, are more incented to constantly refine and improve their products in order to maintain market share. With an open-standards solution, the inability to formulate a rapid response to inevitable security breaches is a fatal flaw. The system is working right now. Premiere Hollywood content is being digitally distributed and secured right now. A federally mandated open-standards solution would put a halt to DRM innovations and possibly cripple services like Intertainer.

Mr. Chairman and members of the committee, I would argue that a standard for digital rights management is not the source of our digital piracy problems. It is my steadfast belief that the private sector already has developed DRM solutions that are more than adequate, and that technology companies will bring DRM innovation to a fever pitch once a more fundamental, underlying issue is addressed. That issue is the standardization of the broadband industry. What we have here is a classic chicken and egg scenario multiplied several times over: content owners will not allow their content to be legitimately digitally distributed until the digital rights management issue is sufficiently addressed; the technology companies in the DRM space are not maximizing their resources to further innovate because there is a dearth of legitimate content being made available for digital distribution over the Internet; digital content, particularly long-form streaming video content, can only be enjoyed with a high-speed, broadband Internet connection; consumers need an incentive, such as compelling content, to switch from their current dial-up modems to high-speed broadband services offered by DSL and cable modem providers; consumers who do decide to move up from a 56k modem to a broadband service are often frustrated because there is no guaranteed minimum connection speed for broadband subscribers, therefore many of today's broadband customers can't even take advantage of so-called broadband services.

To further illustrate this point, imagine picking up your telephone and not getting a dial tone on random occasions. Imagine still that you perceived that as normal. That's the experience of today's broadband Internet user, who has no guaranteed minimum connection speed and often finds that their high-priced, high-speed service is scarcely crawling above dial-up. Is this the fulfillment of the broadband promise? Many broadband providers are out in the marketplace today advertising the revolutionary benefits consumers will realize with these fast connections. Benefits such as distance learning, video conferencing, and access to enormous libraries of entertain-

ment instantly available with the click of a mouse. But content providers looking to stonewall digital distribution until they find a way to become the digital gatekeepers will say that those vast entertainment libraries accessible via broadband services will never be made available to the citizens of this country until the digital rights management issue is addressed. Some studios that licensed to us in the past using our existing DRM system have indeed withdrawn their licenses in the last year and created a classic supply demand squeeze. My contention is that the DRM issue is being addressed; it's the distribution network for this wealth of digital content that needs attention.

The fact that less than 6% of the optical fiber that was laid down in the tech boom of the last four years is in use should concern not only investors in Cisco, Nortel and Lucent, but also educators, medical professionals and every artist interested in reaching an audience with a film, a song or a game. With the right regulatory guidance we could offer interactive DVD quality video on demand service to most every home and classroom in the country by the end of 2003. This service could retrain workers in their homes, provide inexpensive video conferencing, allow doctors to have access to specialists for consultation and provide an open platform for the filmmakers and musicians of the country to reach their audience without having to pay most of their income to gatekeepers.

To achieve this transformation the FCC would simply have to mandate a truth in advertising policy in regards to broadband. Today if you buy broadband service from your local telephone company, cable company or ISP you are offered "up to 1.5 MBPS". You are not told what the minimum level of service is. Broadband providers are "oversubscribing" their networks in order to maximize profits on broadband service. But to deliver advanced video services a minimum of 750 KBPS is required to the home for VHS video quality. For DVD quality a minimum of 1 MBPS is required.

I have to confess that I have a great deal of optimism for what a world of on demand media might look like. A few years ago, Bruce Springsteen wrote a song that typifies many Americans' view of television . . . "57 Channels and Nothing On". Going forward our country has a choice of two visions of what our media culture might look like. One might be 500 channels (owned by 6 corporations) and nothing on. The other might allow consumers easy on-demand access to a world of unique artistry of such power and grace as would melt the heart. I believe that the same innovative spirit that allowed me to show you "Shrek" running over a telephone line this morning will continue to improve the current protection of all forms of digital intellectual property. While I believe that Congress can play a major role in moving us towards the world of digital abundance, trying to set a national encryption policy is surely not the way to get there.

Chairman LEAHY. Joe Kraus is the cofounder of Excite.com and a new consumer organization called DigitalConsumer.org. He graduated in the early 1990s from Stanford and he borrowed the huge venture capital sum of $15,000 and built the Internet search engine Excite, which later became Excite At Home.

Mr. Kraus, we are delighted to have you here. Please go ahead, sir.

STATEMENT OF JOE KRAUS, FOUNDER, DIGITALCONSUMER.ORG

Mr. KRAUS. Thank you. Chairman Leahy, I am glad you mentioned Amy Harmon's piece in the New York Times this morning. I do think it outlines the issue well. However, it is not just Hollywood versus technology. As Walt Mosberg's piece in the Wall Street Journal pointed out this morning, there is a third actor in this play and that third actor is the customer, the consumer.

Chairman LEAHY. In fact, we will put Mr. Mosberg's column, one I read every time, part of the record.

Mr. KRAUS. Thank you.

That consumer legally buys digital media and expects to use it in flexible ways, and it is these consumers whom we hope to rep-

oped and technologies have been developed that eliminate fair use rights for consumers, your constituents.

Many in the copyright community don't admit that there are such things as fair use rights, and this denial persists despite 30 years of congressional action and Supreme Court rulings affirming. And while I am not a lawyer, and I don't play one on TV, I do know this much: Consumers believe they have personal use rights and they expect Congress to ensure that they are safeguarded.

Copy protection, especially overseas piracy for illicit sale, is an important issue. But before this committee considers yet another change in the law at the behest of the copyright owners, I would respectfully urge you to ensure that the interests of the consumer are ensured.

Chairman LEAHY. Mr. Kraus, you probably agree with Mr. Barrett that if it is not protected initially, then you probably have lost your ability to protect.

Mr. KRAUS. I agree with that, and I would point people to Professor Felten's testimony, a respected security expert from Princeton University, who said that a government standard that mandates secure technology is like a government standard for teleportation technology. It is not going to be possible, and any totally secure system isn't possible to build, in my opinion, and certainly in the opinion of greater experts than me. Protecting it at the source is most likely the only way.

[The prepared statement of Mr. Kraus follows:]

STATEMENT OF JOE KRAUS, FOUNDER, DIGITALCONSUMER.ORG

Chairman Leahy and members of this committee, good afternoon. My name is Joe Kraus and I am a co-founder of digitalconsumer.org. We are a new consumer advocacy organization comprised of executives, entrepreneurs, venture capitalists and consumers who want to protect a consumer's personal use rights in the digital media world.

Before I begin the substance of my testimony I want to stress one point: I am a proponent of intellectual property. I am a technology entrepreneur. In 1993 I started a company called Excite which after 7 years became the third most trafficked site on the Internet. My professional success depended upon strong intellectual property protection. I am an IP believer.

However, I am concerned about recent trends. Historically, our country has enjoyed a balance between the rights of copyright holders and the rights of citizens who legally acquire copyrighted works. Generally speaking, rights holders have the exclusive right to distribute and profit from artistic works. Consumers who legally acquire these works are free to use them in certain noncommercial ways.

For example, we're all used to buying a CD and making a tape of it to listen to in our car. We're used to making mixed tapes of our favorite music. We're used to recording the football game so we can watch it after our child's soccer practice. We're used to buying a book and lending it to a friend. Essentially, we're used to having a reasonable degree of freedom as to how we use the media we buy.

It's important to emphasize that these rights are embodied in legislation and court decisions. Congress and the courts have carefully crafted a deliberate balance between media companies and ordinary citizens.

Unfortunately, this balance has shifted dramatically in recent years, much to the detriment of consumers, entrepreneurs and the risk capital markets.

Let me give you some examples, starting with the consumer.

This past Christmas I bought my dad a DVD player. Within two weeks I got a phone call. "It's broken" he insisted. When I asked why, he said that he put a DVD in and as he had become accustomed to doing with his video tapes, when the movie previews came up, he went to skip through them. But now, the DVD player wouldn't let him. I told him that his VD player wasn't broken but that existing law made it illegal to create a DVD player that would skip through content that the media

of those personal-use copies. As you can imagine, she didn't know what I was talking about.

So now I have a big "x" marked on my calendar waiting for the phone call from my parents when the new digital television standards are implemented because the standards clearly envision a market where a network broadcaster like Disney's ABC gets to decide what programs my parents are allowed to record and which ones they aren't. And I can just hear them saying, Joe, why can you record the nightly news but not "Everybody Loves Raymond"?

So the solutions the content industry have advanced to date have been more effective at preventing my mom from copying her legally-bought music to her MP3 player than at diminishing major commercial piracy operations in China and Taiwan.

I agree with Professor Felten's written testimony that copy protection isn't breakable by my mother, but it is very breakable by many people with computer backgrounds. So when we debate how we prevent illegal copying, my parents, unbeknownst to them, are losing their historic personal-use rights. I think this is wrong and cannot continue unabated.

I want to stress also that the cloud around personal use rights affects not only consumers but the capital markets as well. Major media companies have used lawsuits and attempts to stop or delay consumer electronics devices that deal with personal use. It began with the VCR, continued with the MP3 player, and most recently is occurring with the ReplayTV personal video recorder.

When new consumer electronics introductions yield new lawsuits from the media companies, these lawsuits inhibit investment. Geoff Yang, head venture capitalist at Silicon Valley-based Redpoint Ventures and lead investor in Tivo, which is a personal video recording company, put it this way: "Given the current state, I can't see how we could invest in another revolutionary consumer technology such as Tivo, given the cloud currently surrounding personal use of the media people already own."

Our organization therefore is advocating a set of principles we call the Consumer Technology Bill of Rights. It is a proposal we hope this committee will seriously consider, as it is simply an attempt to positively assert the consuming public's personal use rights. These rights aren't new. They are historic rights granted in previous legislation and court rulings which over the last four years have been whittled away.

These include the right to time shift, to record a television program and watch it later, and the right to space shift, to copy a piece of music from a CD to a Walkman or MP3 player, or to make a mixed tape. The full list of rights can be viewed at our Web site www.digitalconsumer.org, and I am happy to provide a written list to anyone who would like to read them.

Under the guise of preventing illegal copying, I believe Hollywood is using the legislative process to create new lines of business at the consumer's expense. The goal is to create a legal system that denies consumers their personal use rights and then charge those consumers additional fees to recoup them.

After years of successful litigation and legislative efforts, many in the entertainment industry are back in Washington asking for more changes to the law. All the while, services have been devel-

re-establish rights that they used to have. And, investors will have clarity on those areas that are safe for capital without the risk of litigation.

Finally, there has been some talk lately of a need to create a government mandated open standard for digital rights management in order to ensure interoperability for consumers. I think a government standard would be harmful to consumers and innovators for several reasons.

First, a government mandated standard is not necessary to ensure interoperability. The market demands interoperability and has no need for the government to insist on it. Examples abound. There is no government mandate for CD player interoperability, yet all CDs play in all CD players. Likewise for DVDS. Consumers don't tolerate the lack of interoperability and as a major market force, they demand it. Therefore, interoperability will occur as a natural effect of the market. (Although no standard has yet emerged for secure digital music, this is due at least in part to the fact that the existing technologies are too burdensome for the consumer. Once a suitably user-friendly technology has emerged, consumers are likely to embrace it.)

Second, government mandates are bad for innovation generally because they assume that the government is able to predict all possible fair and legal uses of technology or content. The very definition of innovation is the discovery of something new and unexpected; by mandating a set of legal uses and criminalizing all others, the government makes innovation difficult.

Third, overly protective copyright laws themselves contribute to technologies that do not interoperate. Interoperability depends on being able to examine data formats, and as long as such examination is criminalized, companies will be restricted in their ability to create compatible products.

Finally, if the government decides to mandate an open standard, there is no guarantee it will truly remain open. Microsoft has a history of "embrace and extend" policies where an open standard is adopted and then modified or extended in order to introduce proprietary features which licensing vendors are encouraged to exploit. The new "expanded standard" meets the basic criteria of the open standard, but if this expanded standard is used to its fullest, it will have features that the original open standard cannot understand; therefore, the open standard becomes less and less effective. Examples of this behavior include the Java programming language, the HTML page layout standard, and the Kerberos security technology.

Overall, I encourage Congress to remain wary of any solution where it is asked to "mandate" standards in the technology industry. Technological innovation moves too quickly and unpredictably to be constrained in this way. In addition, consumers already exert market forces to ensure a reasonable outcome.

Under the guise of "preventing illegal copying" I believe Hollywood is using the legislative process to create new lines of business at consumers' expense. Their goal is to create a legal system that denies consumers their personal use rights and then charge those consumers additional fees to recoup them.

After years of successful litigation and legislative efforts, many in the entertainment industry are back in Washington asking for more changes to the law. All the while, they have been quietly developing services, technologies and products that eliminate fair use for their customers, your constituents. Many in the copyright community will not admit that there is such a thing as fair use. They will not admit that once consumers have legally purchased media that they should be free to engage with it in a wide variety of personal uses. This denial persists despite 30 years of Congressional action and Supreme Court rulings affirming consumers' fair use rights. And, while I am not a lawyer, I do know this much: consumers believe they have personal use rights and they expect Congress to insure that they are safeguarded. Copy protection, especially overseas piracy for illicit sale, is an important issue. But before this Committee considers yet another change in the law at the behest of the copyright cabal, I would respectfully urge you to insure that the interests of the consumer are insured.

Thank you very much for the time to address this committee today.

Chairman LEAHY. I should note for the record we have material from Gary Shapiro, of the Home Recording Rights Coalition; Jack Valenti's statement; Hilary Rosen's statement; the Video Software Dealers Association; and Professor Felten's statement, all of which will be part of the record.

Of course, Senator Hatch and I have the Web page we unveiled today, so others can comment.

companies flagged as "must watch". Needless to say he didn't know what I was talking about.

Similarly, my mom bought an MP3 player recently. In early February I got a phone call from her saying "my MP3 player is broken". I asked why. She said that she had been putting CDs on her MP3 player but that a couple of the CDs she recently bought didn't seem to transfer. I told her she probably had some of the new "copy protected" CDs. She asked what that meant. I explained that while she was granted the right in the 1992 Audio Home Recording Act to make personal use copies of CDs, in 1998 her ability to do so was taken away if the record companies tried to prevent the making of those personal use copies. Needless to say, she didn't know what I was talking about either.

I now have a big X marked on my calendar waiting for the phone call from my parents when the new digital television standards are implemented. The standards currently envision a market where a network broadcaster like Disney's ABC gets to decide what programs my parents are allowed to record and which ones they aren't. I can just hear them saying "Joe, why can we record the nightly news but not 'Everybody Loves Raymond?' "

While I understand the desire of the content industry to prevent illegal copying, I believe it would be a disservice to the hundreds of millions of law abiding consumers in this country if the debate over preventing illegal copying suddenly stripped them of their ability to record TV shows they've paid for in their cable bill or copy CDs they've bought onto their MP3 players to listen to them in the gym.

The solutions that the content industry has advanced to date have been more effective at preventing my mom from copying her legally bought music to her MP3 player than at diminishing major commercial piracy operations in China and Taiwan. As we all know, copy protection isn't breakable by my mother, but is very breakable by many people with computer backgrounds. In addition, I believe that the effect of denying citizens their personal use rights is to drive consumers toward illegal downloading. If I buy a CD that I can't put on my MP3 player, but I can illegally download a song that I can take anywhere, which one am I going to choose?

In the debate over how we prevent illegal copying, my parents, unbeknownst to them, are losing their historic personal use rights. This is wrong and cannot be allowed to continue unabated.

The cloud around personal use rights affects not only consumers but innovation and the capital markets as well.

My business partner, Graham Spencer, is a computer programmer. Much of his time is spent getting different software systems to talk to one another. The act of examining a legally acquired computer program or hardware device for the purpose of analysis, debugging, or compatibility has traditionally been considered a "fair use." However, the same laws that are depriving consumers of their fair use rights are also being applied to programmers. The result is a chilling effect on software and hardware innovation. The problem is severe enough to have attracted the attention of some of the country's best software engineers.

In addition, major media companies have used lawsuits in attempts to stop or delay consumer electronics devices that deal with personal use; it began with the introduction of the VCR, continued with the MP3 player and most recently is occurring with the ReplayTV personal video recorder. These devices were all designed to make it easier for consumers to enjoy the media they paid for.

However, when new consumer electronics introductions yield new lawsuits from the media companies, these lawsuits inhibit investment. Geoff Yang, head venture capitalist at silicon-valley based Red Point Ventures and lead investor in Tivo, a personal video recording technology company, puts it this way: "given the current state of the DMCA, I can't see how we could invest in another revolutionary consumer technology such as TiVo given the cloud currently surrounding personal use of the media people already own. This issue must be resolved before venture investment to seed the consumer technology future can continue."

Our organization therefore is advocating a set of principles we call the "consumer technology bill of rights". It is a proposal we hope this Committee will seriously consider as it is simply an attempt to positively assert the consuming public's personal use rights. These rights aren't new; they are historic rights granted in previous legislation and court rulings which have over the last four years been whittled away. These include the right to "time-shift"—to record a television program and watch it later; and the right to "space shift"—to copy a piece of music from a CD to a walkman or MP3 player or to make a mixed tape. The full list of rights can be viewed at our web site, www.digitalconsumer.org or I'm happy to provide a written list to anyone who would like to read them.

Clarifying, asserting, and defending personal use rights is good for consumers and good for investment. Citizens will have a simple, comprehensible set of laws that

re-establish rights that they used to have. And, investors will have clarity on those areas that are safe for capital without the risk of litigation.

Finally, there has been some talk lately of a need to create a government mandated open standard for digital rights management in order to ensure interoperability for consumers. I think a government standard would be harmful to consumers and innovators for several reasons.

First, a government mandated standard is not necessary to ensure interoperability. The market demands interoperability and has no need for the government to insist on it. Examples abound. There is no government mandate for CD player interoperability, yet all CDs play in all CD players. Likewise for DVDS. Consumers don't tolerate the lack of interoperability and as a major market force, they demand it. Therefore, interoperability will occur as a natural effect of the market. (Although no standard has yet emerged for secure digital music, this is due at least in part to the fact that the existing technologies are too burdensome for the consumer. Once a suitably user-friendly technology has emerged, consumers are likely to embrace it.)

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Third, overly protective copyright laws themselves contribute to technologies that do not interoperate. Interoperability depends on being able to examine data formats, and as long as such examination is criminalized, companies will be restricted in their ability to create compatible products.

Finally, if the government decides to mandate an open standard, there is no guarantee it will truly remain open. Microsoft has a history of "embrace and extend" policies where an open standard is adopted and then modified or extended in order to introduce proprietary features which licensing vendors are encouraged to exploit. The new "expanded standard" meets the basic criteria of the open standard, but if this expanded standard is used to its fullest, it will have features that the original open standard cannot understand; therefore, the open standard becomes less and less effective. Examples of this behavior include the Java programming language, the HTML page layout standard, and the Kerberos security technology.

Overall, I encourage Congress to remain wary of any solution where it is asked to "mandate" standards in the technology industry. Technological innovation moves too quickly and unpredictably to be constrained in this way. In addition, consumers already exert market forces to ensure a reasonable outcome.

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After years of successful litigation and legislative efforts, many in the entertainment industry are back in Washington asking for more changes to the law. All the while, they have been quietly developing services, technologies and products that eliminate fair use for their customers, your constituents. Many in the copyright community will not admit that there is such a thing as fair use. They will not admit that once consumers have legally purchased media that they should be free to engage with it in a wide variety of personal uses. This denial persists despite 30 years of Congressional action and Supreme Court rulings affirming consumers' fair use rights. And, while I am not a lawyer, I do know this much: consumers believe they have personal use rights and they expect Congress to insure that they are safeguarded. Copy protection, especially overseas piracy for illicit sale, is an important issue. But before this Committee considers yet another change in the law at the behest of the copyright cabal, I would respectfully urge you to insure that the interests of the consumer are insured.

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Of course, Senator Hatch and I have the Web page we unveiled today, so others can comment.

I would say on the side that when you mention not being able to flip through previews, frankly I am offended by the arrogance of Hollywood doing that. Especially if I paid for a DVD and what not, I want to go and watch what I want to watch on it. It is as bad as paying $8 to go into a theater with the sound-proofing of tissue paper and a screen smaller than my TV set, and you have got to sit there and watch 20 minutes of ads, and then they sometimes wonder why people don't go.

Justin Hughes is a professor of law at UCLA Law, where his research and teaching interests focus on intellectual property law. He has also been with the U.S. Patent and Trademark Office focusing on Internet-related intellectual property issues, 11th Amendment immunity issues, and intellectual property law in developing countries.

We are pleased to have you here, and when you finish I will turn first to Senator Feinstein for questions and then to Senator Specter for questions.

STATEMENT OF JUSTIN HUGHES, VISITING PROFESSOR OF LAW, UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Mr. HUGHES. Thank you, Mr. Chairman and members of the committee, for inviting me here to talk today about the continuing saga of copyright and digital technologies. By way of disclosure, I should say that, technically speaking, I am an employee of the State of California, which means that my salary is paid by both Intel and Disney, Viacom and Qualcomm, technicolor and technology-start-ups. So in my testimony there is probably something for everyone to hate.

I think that we all agree that there is an enormous problem today with unauthorized copying and distribution of digital versions of copyrighted works. The worst part of the problem is still outside the United States and is traditional physical media piracy. Then comes piracy from peer-to-peer network systems that respect no national borders—Napster, Gnutella, Free Net, and the many variations of Fast Track software. As broadband proliferates, owners of audio-visual works are understandably worried about being Napster-ized.

Now, recently there have been proposals that the Government should mandate specific copy control technologies to be concluded in all digital devices, and the thought seems to be that industry should negotiate agreement on the technological controls and then the Federal Government should make those controls a matter of law. I have three concerns I want to focus on today about that idea.

The first is that Congress should be cautious in how much it is willing to defer to the policy decisions and legislative drafting of private parties. An agreement brokered in industry negotiations and then blessed by Congress may fail to address the concerns of consumers. Users of copyrighted works have distinct privileges under copyright law, fair use primary among them. Now, I admit sometimes academics overblow fair use rights and privileges, particularly as they extend to making non-transformative copies of works, but I agree with Mr. Kraus that those rights exist and that they are real.

The 1998 Digital Millennium Copyright Act reflects Congress' reasonable concern for fair use in the digital networked era. The DMCA specifically provides that it does not affect fair use, and section 1201(a) was specifically crafted to make sure that the prohibition on digital lock-picking would not extend to controls for control of copying, precisely because some copying constitutes fair use.

In that same spirit, I think that if there has to be any additional regulatory structure—and I say additional—imposed on digital network systems to protected copyrighted works, it should be one that focuses on stopping unauthorized distribution over the Internet and leaves alone what some people have called the "home net." Whether it is a broadcast flag or water-marking or any other technology, if it is mandated by law, it may be necessary to determine exactly how much non-commercial, non-transformative copying a person can do in their home.

My second concern is one that, Mr. Chairman, you and the ranking minority member have already expressed, and that is government just isn't very good at mandating technology. And I don't particularly think that private industry is very good sometimes at mandating technology, and the ease with which various encryption systems have been hacked is demonstrative of that. But I think that government technocrats and bureaucrats, having been one, are even worse at that mission.

Related to that, my third concern is that the government mandate of any specific technology to protect copyrighted works would be a dramatic reversal of Congress' approach to the digital world to date. To date, Congress has wisely understood, this committee in particular, that government should not try to pick technological winners and losers.

In that spirit, the DMCA wisely includes a no-mandates provision, making clear that consumer electronic, computer, and telecommunications equipment does not have to be designed to respond to any particular technological measure. I think that that hands-off approach of not designating technology for the Internet is one Congress has pursued in many areas, not just copyrighted works. One example I give in my written testimony is the e signatures bill.

Related to this, I have the concern that if we change our policy direction now, we will have a hard time explaining it internationally. Having been one of those people who went around the world explaining the virtues of the Digital Millennium Copyright Act and its hands-off approach to the Internet, I would hate to be an American diplomat who had to go around explaining why we had suddenly decided that everything had to be done a completely different way. It makes us look, to put it frankly, a little clueless.

If I can conclude, there are tough decisions to be made in copyright policy, and those decisions may not be too far down the road. Many of the people in this room remember the hearing on Napster and other peer-to-peer file-sharing systems which this committee held in 2000. At that hearing, Chairman Hatch posed a couple of hypotheticals to Hilary Rosen, head of the recording industry.

Chairman Hatch asked, if he made a tape copy of a CD to play in his car, would that be a fair use? He then asked, if he made a copy of a CD for his wife to play in her car, would that be a fair

use? Ms. Rosen demurred from giving a direct answer to Senator Hatch's questions, and given her job I completely understand that.

But let me answer those questions a couple of years later. Are those fair uses? My very theoretical, abstract, law professor answer is this: If the chairman of the Senate Judiciary Committee and the ranking minority member and the other members think something is a fair use, it is a fair use, or it is soon going to be. [Laughter.]

And I close there for a very simple reason.

Chairman LEAHY. And we know that the ranking member and I always agree on these things. [Laughter.]

Mr. HUGHES. Always agree.

So whatever legislation is introduced in other quarters, whatever negotiations are conducted privately, I think it is imperative that this committee not abdicate its traditional job in deciding the proper balance in copyright law for the interests of creators, distributors, consumers and citizens.

Thank you.

[The prepared statement of Mr. Hughes follows:]

JUSTIN HUGHES, VISITING PROFESSOR OF LAW, UNIVERSITY OF CALIFORNIA AT LOS ANGELES

INTRODUCTION

Thank you, Mr. Chairman, Senator Hatch, and members of the Committee for inviting me to appear before you today to talk about the continuing saga of copyright and digital technologies. During the past few years, I've had the honor and pleasure of working with many people in this room on intellectual property and Internet issues, although these days I spend more of my time trying to teach the law Congress has written in this area.

By way of disclosure, I should say that, technically speaking, I'm an employee of the State of California. Which means that my salary is paid by both Intel and Disney, Viacom and Qualcomm, Technicolor and technology start-ups. So, in what I'm going to say, there will probably be something for everyone to hate.

I. CHALLENGES TO COPYRIGHT HOLDERS AND APPROPRIATE RESPONSES

There is no question that we face an enormous problem today with unauthorized copying and distribution of digital versions of copyrighted works. Copyright holders face this problem and *we all* face this problem as an increasingly information and media driven economy. The worst part of this problem is probably outside the U.S. and is "traditional" physical media piracy—as when you can buy a dozen CDs for $5 about 100 paces from the U.S. Embassy in Beijing. Then comes piracy from peer-to-peer network systems that respects no national borders—Napster, Gnutella, Free Net, and the many variations of Fast Track. Web-based piracy in the form of warz sites; that is, Internet piracy from hosted sites is another level of problem. Finally, there is a certain level of unauthorized activity done by people at home—typically, until very recently, in the form of taping works onto cassettes and videocassettes.

We need to distinguish among these different sorts of activity for two reasons. First, the problem of digital piracy of works—on physical media and through unauthorized networked distribution—*does* threaten the incentive system that copyright is supposed to create.

But, second, a certain amount of unauthorized copying by private citizens—at home, for their own use, and not distributed beyond family and a small circle of friends—does *not* threaten the incentive system that copyright creates. And it *does* serve valuable goals in a civil society. In short, it should not be lumped with the other activities; it is not "piracy"—indeed, much of this unauthorized copying has been expressly sanctioned by our highest court.

To date, the efforts to fight digital piracy of copyrighted works has been twofold. First, head-on efforts to shut down unauthorized Internet distribution—as in the Napster litigation. Second, the content industry and the consumer electronics industry have worked together in private, voluntary, industry-led collaborations to design protection measures: measures to keep unauthorized digital copies of works from

being captured, so there would be nothing illicit to distribute on the Net. These can be industry standards—as with the CSS encryption for DVDs—or competing technological approaches to security, such as the differing digital rights management (DRM) systems of RealNetworks and Microsoft.

At times, these processes may not have produced the most consumer-friendly protection protocols. There are some people who believe that encryption systems like CSS impinge upon "fair uses" under copyright law (I will say more about that shortly) .

But at least these are not digital locks regimes designed by bureaucrats and enforced by diktat. The message now from some voices in the copyright community is that if the computer, electronics, and telecommunications companies are not cooperative enough in crafting a new round of standard control technologies, then the federal government should step in and mandate which particular security technologies must be deployed. The intent of some of these controls would—like streaming technology or CSS—be to prevent digital copies from being made by individuals. But unlike those existing digital locks, the design of future digital locks would be regulated by the government.

I think that would be a troubling development. Congress should be cautious in how much it is willing to defer to the policy decisions—and legislative drafting—of private parties. A member of the House is reported to have said that the House Subcommittee on Courts and Intellectual Property "has a history of preferring that commercial disputes be resolved between the parties rather than through the legislative process, which may favor one interest group over another." [1]

That's all good and well, but this risks being private resolution blessed by the legislative or regulatory process without any way to be sure that the private discussions took account of all the relevant social interests. How digital copyrighted works are distributed and used is a matter of enormous interest to consumers too. Users of copyrighted works have distinct privileges in the balanced scheme of the copyright law—fair use and the first sale doctrine chief among them. An "agreement . . . brokered through private, voluntary, industry-led negotiations, and then blessed by Congress" may fail to address those concerns. [2]

II. The Importance of Fair Use

Codified in 1976, but tracing its roots in American law back to at least the 1840s,[3] 17 U.S.C. § 107 fair use is about as far from a bright line test as statutory law should wander. There is no question that what counts as "fair use" has changed over time. As reproductive technologies became more and more widely available to end users in the second half of the 20th century, fair use expanded to include a certain, undetermined amount of "non-transformative" copying for personal, non-commercial uses. On the only occasion when the Supreme Court considered non-transformative, private copying, it concluded in the *Sony v. Universal Studios* case [4] that at least one form of such copying—"time-shifting" to watch a broadcast show at another time—was protected activity.

Let me say a few things about that *Sony "Betamax" decision that one rarely hears.*

First, despite the clamor of some of academics, the right to make near perfect or perfect non-transformative copies of pop culture works is not at the core of our democratic freedoms. [5] It isn't even at the core of fair use. Some people forget that the *Betamax* decision was a 5–4 vote and the dissent thought that (near) perfect, non-transformative copying of audiovisual works was NOT fair use. That dissent included Justices Blackmun and Marshall—surely two of the last century's most vig-

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[1] . . . Irina Y. Dmitrieva, *I Know It When I See It.: Should Internet Providers Recognize Copyright Violations?* 16 Santa Clara Computer & High Tech. LJ. 233, 246.(2000), citing NII Copyright Protection Act of 1995: Hearings on H.R. 2441 Before the Subcomm. on Courts and Intellectual Property of the House Comm. on the Judiciary, 104th Cong., at 20 (1995)

[2] Testimony of Peter Chernin, President and CEO, News Corp., before the Senate Commerce, Science, and Transportation Committee, February 28, 2002, at 6.

[3] In Folsom v. Marsh, 9 F. Cas. 342 (No. 4,901) (CCD Mass. 1841), Justice Story summarized earlier copyright cases in a distillation of "fair use" which sustained the judge-made doctrine until its 1976 codification: "look to the nature and objects of the selections made, the quantity and value of the materials used, and the degree in which the use may prejudice the sale, or diminish the profits, or supersede the objects, of the original work." Id., at 348. There were considerably earlier cases in England permitting "fair abridgements" under the Statute of Anne, *see* W. Patry, The Fair Use Privilege in Copyright Law 6–17 (1985).

[4] Sony Corp. of America v Universal City Studios, Inc., 464 U.S. 417 (1984).

[5] There is no reason to think that the *Betamax* majority's analysis would be any different between a near-perfect analog copy [as at issue] and a "perfect" digital copy.

orous defenders of free speech and all the values that make a civil democratic society worth living in.

But, second, it's been a long time since the *Betamax* decision. Twenty years. A lot has changed in that time—lots of the factors which built the slim, five member majority have changed. Yet the studios have never challenged the *Betamax* conclusion that making non-transformative copies for "time-shifting" (a personal, non-commercial use in the home) is fair use. A whole generation of consumers is now accustomed to a certain amount of personal copying being a protected, legal activity.

I think it's worth mentioning what is now an open secret. *People at home make copies of TV programs for more than "timeshifting." People build up libraries of their favorite series, they copy children's programs to play again and again for the kids; they even sometimes share* these recorded programs on their clunky videocassettes with neighbors and colleagues.[6] [And this is often genuine "sharing" as we are taught the concept as children, not Napsteresque "sharing" in which a person *gives* without *giving up* anything.]

That's important for one simple reason—courts have identified customary practices as being relevant in determining what "markets" copyright holders are entitled to and, in turn, what kinds of copying may be fair uses.[7] Consumers have become accustomed to making some limited amount of non-transformative copies for personal use. This applies to all sorts of copyrighted works and across all sorts of machines and appliances.

Having said that fair use has evolved in the past, the corollary is that we don't know where fair use will go in the digital future. But if we don't know where fair use will go, we definitely should not allow anyone to unilaterally determine that fair use should go away. There have always been a few people who, in Professor Brown's 1963 description, "treat fair use as though it were some grudging toleration of an annoying public."[8] That's wrong. Fair use and other limitations on the rights of copyright owners—like the first sale doctrine—are part and parcel of the social bargain of copyright.

The 1998 Digital Millennium Copyright Act (DMCA)[9] reflects reasonable concern for "fair use" in the digital, networked era. Section 1201(c)(1) expressly provides that the new law does not affect fair use under section 107 and the prohibition on "digital lock picking" in section 1201(a) does not extend to digital locks that control any rights or privileges of the copyright holder beyond "access"—precisely because *some* unauthorized uses will be fair uses. Only time will tell whether this arrangement in the DMCA workably preserves fair use, but the intent is clear.

In that same spirit, the European Union has also recognized the importance of preserving "personal uses" and "fair dealing" limitations and exceptions from copyright liability under various European laws. The European Union's new Copyright Directive takes a slightly different tack from the DMCA, but with the same intent: under Article 6(4) of the Directive, if a member state of the European Union determines that digital locks deployed by copyright owners are inhibiting consumers ability to enjoy certain "personal uses" (what we would call fair uses), that country may take "appropriate measures" to ensure such uses are available to consumers.[10]

The smartest people in the audiovisual industry realize this too—that a certain amount of non-commercial, personal copying definitely does not harm and may even benefit their businesses.

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[6] Just last month, I got an all-faculty email requesting a copy of a PBS documentary. The email read, in part, "I'm urgently trying to locate a videotape copy of the PBS Frontline documentary 'Inside the Jury Room'. Is there anyone in the Law School who happens to have a copy that they can loan out for a few days? I just discovered that my copy has gone missing . . . ." Admittedly, this was for an educational purpose, but it is exemplary of how people exchange, lend, and share recorded audiovisual works within small circles of family, friends, and colleagues.

[7] See, *e.g.* Williams & Wilkins Co. v. United States, 487 F.2d 1345, 1381, et seq., (Ct. Cl. 1973) (recognizing customary practices in determining fair use of photocopying), aff'd by equally divided Court, 420 U.S. 376, 43 L. Ed. 2d 264, 95 S. Ct. 1344 (1975); New Era Publications Int'l v. Carol Pub. Group, 904 F.2d. 152, 157 (2d Cir. 1990) (discussing reasonable and customary practices of biographers in determining fair use); Maxtone-Graham v. Burtchaell, 808 F.2d 1253, 1263 (2d Cir, 1986) (same); Rosemont Enterprises, Inc. v. Random House, Inc., 366 F.2d 303, 307 (2d Cir. 1966), cert. denied, 385 U.S. 1009, 17 L. Ed. 2d 546, 87 S. Ct. 714 (1967)) (same). *See also* Lloyd L. Weinreb, Fair's Fair: A Comment on the Fair Use Doctrine, 103 Harv. L. Rev. 1137, 1140 (1990)

[8] COPYRIGHT LAW REVISION, PART 3 PRELIMINARY DRAFT FOR REVISED U.S. COPYRIGHT LAW AND DISCUSSIONS AND COMMENTS ON THE DRAFT 171 (U.S. Government Printing Office, 1964).

[9] Pub. L. No. 105–304, 112 Stat. 2860 (October 28,1998).

[10] Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society., Chapter III, Article 6(4).

III. Forcing Us To Define How Much Use Is Fair Use

For this reason, if there has to be any regulatory structure imposed on digital, networked systems to protect copyrighted works, it should be one that focuses on stopping unauthorized distribution over the Internet and leaves alone what some people have called the "home net"—the integrated system of personal computers, display devices, and audio equipment that private homes will increasingly have.[11] The focus should be on technology that addresses commercial and commerce-substituting broadband distribution, not on technology that could be used to stop Aunt Mary from copying her favorite soap opera for herself or a friend.

More importantly, if the copyright industries want particular security technologies mandated by law, then instead of pursuing private, industry negotiations, we should all be prepared to sit down and do what we have not been willing to do in this country: establish exactly how much unauthorized, personal use is fair use. Perhaps additional security protocols like broadcast flags and watermarking might be legally mandated at least *for some machines and appliances* if the content community is willing to accept a limited, defined zone of personal, private, unauthorized use of copyrighted works. That would be a system in which we defined a minimum amount of copying a private individual would be allowed to do for herself, her family, and her immediate social circle.

This could be a kind of Audio Home Recording Act (AHRA)[12] writ large—covering more appliances and broadly extending its basic ideas, including the recognition that consumers can make *some* digital copies for personal uses. There is, of course, an important lesson in the AHRA: Congress legislated, but the market decided to go another direction and the statutory technological mandate was a technological dead-end.

IV. A Sea Change From the DMCA

Which brings me to a final, couple, broad concerns. While today's hearing is intended to be a general discussion of these issues, Senators Hollings and Stevens have recently proposed legislation on this topic, **the Security Systems Standards and Certification Act** (SSSCA). We might as well talk about this, because we all know nothing focuses a lobbyist, legislator, or staffer's attention in DC like a draft bill.

In at least one version, the SSSCA would require the specification of "certified security technologies," either by an industry-only forum or by the Secretary of Commerce. In either case, the particular security technologies would be specified in law (regulation) and all "interactive digital devices" would be required to include such security technology—all to the goal of preventing the making of digital copies.

As best as I can tell, the SSSCA's sweeping definitions would require *specified* technology to be built into every piece of software; PC, video card, hard drive, CPU, motherboard; PDA; DVD or CD player; and every monitor manufactured or distributed in our country.[13] The security technology would be specified in a process that apparently has little or no safeguards for the traditional balance of copyright rights and privileges.

Moreover, the government's best intellectual property, information policy, and competition experts—at the USPTO, the Copyright Office, the Justice Department, and the science agencies—don't have a leading role in the "specification" process. It's hard to understand this. I think Congress ought to rely more on the expertise

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[11] I think that Thomson Multimedia characterized this goal in similar terms, as "full functionality in a Personal Home Network" while gaining "protection of digital content from widespread piracy." Testimony of James E. Meyer, Senior Vice President, Thomson Multimedia, before the Senate Committee on Commerce, Science, and Transportation, February 28, 2002, at 2.

[12] 17 U.S.C. § 1001, et seq.

[13] Although the definition of "interactive digital device" in the SSSCA would appear to sweep in electronic keyboards, wristwatches, airplane control systems, and new generations of toasters, microwaves, telephones, and vacuum cleaners, the intent may be more limited, i.e. that security standards would be "mandated for inclusion in all digital media devices that handle creative content." Testimony of Michael D. Eisner, Chairman and CEO, The Walt Disney Company, before the Senate Committee on Commerce, Science, and Transportation, February 28, 2002, at 3. Of course, that does not tell us whether it is devices *intended* to handle creative content or *capable* of handling creative content—which will someday, if not already, include your wristwatch and maybe your toaster.

it pays for every year and less on the "experts" to be found at so many Washington fundraisers. [14]

But more importantly, the SSSCA or anything like it would represent a dramatic reversal of Congress' approach to the digital world. To date, Congress has wisely understood that the government should not try to pick technological "winners" and "losers." Government should stay out of the business of imposing technological solutions to problems which move much faster than bills through Congress or regulations through the *Federal Register*.

In that spirit, the DMCA wisely includes a "no mandates" provision, making clear that consumer electronics, computer, and telecommunications equipment systems do not have to be designed to respond to any particular technological measure. [15] The development of effective technological protection measures and their successful deployment was left up to the private sector. Congress' thoughtful effort to stop government from picking technological winners has extended far beyond intellectual property. For example, the E-Signatures bill, the work of the Judiciary and Commerce committees in both houses, is technologically neutral. It does *not* pre-empt states passing their own electronic signatures legislation, except that pursuant to section 102(a)(2)(A), *the federal law does pre-empt any state government that tries to pick a particular technological solution* to the problem of electronic signatures, documents, and recordkeeping.

V. How Would We Explain This Around the World?

I have another concern about such a quick revisiting of the issue of technological protection measures—just months after some of the key provisions of the DMCA have come online.

Since the ratification of the WIPO Copyright Treaty (WCT) and the WIPO Phonograms and Performances Treaty (WPPT) in 1996, the United States has been at the forefront in advocating that countries ratify these international agreements and implement them through strengthening and improvement of domestic copyright legislation. Since the passage of the DMCA, the U.S. Government has held up the DMCA's balanced, hands-off approach as a model for how countries should implement international copyright norms for the digital, networked age.

If we suddenly do a volte-face and decide that government must mandate the particular security devices and protocols needed to protect copyright works, it gets considerably harder to tell other countries that we know what we're doing. Frankly, such a policy change could make us look a little clueless. Having been in many of these conferences, discussions, and negotiations, I can easily imagine a savvy technocrat from another country noting such a change in U.S. policy and asking hard questions about American understanding of this Internet phenomenon, this digital universe of our own creation.

In short, there may be international reasons for such a change in policy to be a last option.

Conclusion

There are tough decisions to be made in copyright policy. And those decisions may not be too far down the road. How the first sale doctrine survives in a digital world, how fair use evolves, how geography-based arrangements for royalties are transmuted into the Internet—all these issues are as important as they are fascinating.

Many of the people in this room remember the hearing on Napster and other peer-to-peer file sharing systems which this committee held in 2000. At that hearing, Chairman Hatch posed a couple hypotheticals to Hillary Rosen, head of the RIAA. Chairman Hatch asked, if he made a tape copy of a CD to play in his car, whether or not that would be a fair use. He then asked if he made a copy of a CD for his wife to play in her car—would that be a fair use? Ms. Rosen demurred from giving a direct answer to Senator Hatch's questions and—given her job—I completely understand that.

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[14] In fact, prior legislative efforts have consistently recognized that the quickly evolving nature of the Internet requires continued monitoring by experts and Congress has wisely chosen to defer decision *or keep issues open* by mandating studies in expert agencies. The DMCA includes a series of such studies by the Department of Commerce and the Copyright Office. The Hatch-Leahy distance education bill (S. 487) passed the Senate last year with a required report from the USPTO on the efficacy and effects of technological protection measures for copyrighted works in use or development.

[15] 17 U.S.C. § 1201(c)(3). The only technological mandate in the DMCA concerns deployment of "Macrovision" technology for a *legacy* technology—analog video recordings.

But let me answer those questions, a couple years late. Are those fair uses? My very theoretical, law professor answer is this: if the Chairman of the Senate Judiciary Committee and the ranking minority member think something is a fair use, *it is probably a fair use or soon will be.*

And I close there for a very simple reason—whatever legislation is introduced in other quarters, whatever negotiations are conducted privately, this committee should not abdicate its traditional job in *deciding* the proper balance in copyright law of the interests of creators, distributors, consumers, and citizens.

Thank you.

Chairman LEAHY. No legislation will pass this year until we have had a chance to look at it.

I promised the Senator from California, who is trying to juggle two different matters, that I would let her go first for questioning. Then, unless the ranking member has come back, we will go to Senator Specter.

STATEMENT OF HON. DIANNE FEINSTEIN, A U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator FEINSTEIN. Thanks very much, Mr. Chairman. I appreciate that. I would like to just make a couple of informal comments.

This is an issue which impacts California dramatically. We have a large IT industry. Mr. Barrett spoke on behalf of the computer industry. We have a very large entertainment industry. We have a very large biotech industry, pharmaceutical industry, all of which are really based on copyright and patent protection.

That is really where this country, as I see it, has made its mark in the world. We have been on the innovative edge of new discoveries constantly, and these new discoveries have been protected by both copyrights and patents.

In the 10 years I have been on this committee, I see this as perhaps the most serious infringement on copyright protection that I have seen and I want to just very briefly explain why, because unless something is done cooperatively and inclusively of all of the industries involved, I think we are going to be forced to simply watch the massive theft of copyrighted works of all kinds all around the world until the thrust to really create disappears. I think it is that serious a situation.

Over the past weekend, my chief counsel went online to verify the statements made to us about how easy it is to get copyright material on the Internet, and he did verify it. This is a ten-cent CD–ROM containing a full-length version of the movie "Shrek," downloaded using the file-sharing program Morpheus. "Shrek" was just released on DVD last November. It is running on HBO right now. It quickly became the best-selling DVD of all time, but apparently someone on the Internet was able to defeat the copy protection on the DVD and put the movie online because my staff was able to download a perfect copy of "Shrek" for free in just a few short hours.

As an example that is even more problematic, my staff was even able to download a full-length copy of "A Beautiful Mind." This is a movie up to Best Picture of the Year. It is still in theaters. It is not even out on video yet, but he was able to get it for free and download it in two-and-a-half hours using the file-sharing program G Nucleus.

So as I see it, Mr. Chairman, this is Napster times ten because nobody can shut these services down. The software operates in a decentralized way and the content resides and passes not through one central server, but everywhere on the Internet. These file-sharing services have already had an impact on the music industry, allowing by some accounts the illegal download of billions of music files every month, and widespread movie piracy is just around the corner.

Now, that is the bad news. The good news is this: I have had a chance to talk to two people. One of them has Mr. Valenti, who has indicated his industry's concern. The other is yesterday Mr. Barrett was nice enough to come in and share his industry's concern.

The good news here is that both parties, as I see it, are willing to sit down and try to work out some protection measure, which I think can certainly be done technologically, to protect copyright. I think this is extraordinarily important because I think it is really related to the creative strength of this Nation. And if the creative strength of the Nation can't be protected by legal tools developed just for that purpose, then really where are we?

So I want to ask my first question, if I might, to Mr. Barrett. Mr. Barrett, how much time do you think it will take, assuming parties are well-meaning and assuming you can sit down at a table and you can work something out?

Mr. BARRETT. Well, Senator, over the last six years a number of solutions have been worked out, as I think you know, in terms of DVDs and audio and pre-recorded content. We are coming up with solutions for digital TV terrestrial broadcasts, the analog hole.

The peer-to-peer issue is a difficult issue. I think there is no silver bullet. I think there will be a combination solution which includes most probably legal solutions such as shutting down unauthorized distributors, technical solutions such as watermarks protecting at the source, business solutions such as offering content through business operations, such as Intertainer and others, at reasonable prices that consumers are willing to pay, and most probably some targeted legislative solutions.

The difficulty, as I explained to you when we met privately, is, in fact, that once "in the free" digital content is on the Net, it is very difficult to differentiate it from legal content on the Net; that is, to differentiate between a home video and "Lord of the Rings" in terms of streaming bit count is very, very difficult. That is the problem that needs to be solved and that is why there is no silver bullet. That is why I think it will be a combination of legal, business, technology and legislative solutions.

Senator FEINSTEIN. Streaming bit count?

Mr. BARRETT. Well, streaming bits; that is what the Internet is, ones and zeroes.

Senator FEINSTEIN. So what you are saying is there is a partial solution, but not an entire solution?

Mr. BARRETT. Well, there is no solution today—first of all, I believe there has been no solution suggested by the content industry. If it had, it would have come to the Content Protection Technical Working Group. No proposed solution has come from that body. We would certainly be willing to look at a proposed solutions.

The solutions that have been made in public but not taken to the Technical Working Group involve such things as monitoring all Internet content flow. In my opinion, that is the analogy to wiretapping all Internet communications. Especially in front of this committee, I don't think that it would find much approval, and certainly amongst the privacy constituents I think it would not find much approval.

The other one is the situation that I mentioned earlier, which is to compare all bit streaming, assuming you ignore the privacy aspect, with a database of all copyrighted content, basically having a fingerprint of all copyrighted content and looking at every Internet message to see if it contains that fingerprint. I don't even know how to do that technically, let alone overcome the privacy issues.

Mr. TAPLIN. Senator Feinstein, if I could just——

Senator FEINSTEIN. My time is up.

Chairman LEAHY. Go ahead.

Mr. TAPLIN. Can I just address the one issue about "A Beautiful Mind?"

Senator FEINSTEIN. Yes.

Mr. TAPLIN. Obviously, since that is a movie that has not been put on a DVD, so it is not commercially available, the only way that movie could have gotten in such a perfect form on the Internet is that someone stole it from a post-production house, which means that the movie studios themselves are being sloppy with their own protection of their content in the post-production process.

It means that someone took an output from a digital editing station or something like that, some assistant editor, and took it home and put it on the Internet. That is not an issue that any of these things that are being talked about would address. That is someone who stole a perfect digital copy from inside the movie studio and got it out there.

Senator FEINSTEIN. But then that is another problem because I think the movie companies can certainly protect themselves. On the other hand, the incentive then grows to steal this and to put it out on the Internet to make money.

Mr. TAPLIN. If we had access to very larger libraries of content and could sell them for a reasonable price, which we are doing, I think the general consumer does not want to go to an illegally pirated site. And if you think about a combination of allowing much more content to come out legally with digital rights management technologies, we have been running for three years and have never been hacked, ever.

If you put them out, the average consumer doesn't want to be a pirate, and then perhaps a little consumer education—i.e., Don Henley or a few artists saying, hey, you are stealing my work if you are going to KazAA—might help.

Senator FEINSTEIN. I hope you are right about the average consumer. I am not so sure, though. But in any event, thank you.

Mr. BARRETT. My point was very much that it is a combination of a business solution, technology solution, and legal solution. I think all of those things have to work in tandem to protect the free content that makes its way to the Internet, whether it makes it from copying off a DVD or it makes it being stolen from a studio.

Senator FEINSTEIN. Thank you, Mr. Chairman. Thank you, Mr. Barrett. I appreciate the opportunity.

Chairman LEAHY. I thank the Senator from California. I know about the conflict she had today and I appreciate the amount of time she spent here.

I turn to the senior Senator from Pennsylvania.

STATEMENT OF HON. ARLEN SPECTER, A U.S. SENATOR FROM THE STATE OF PENNSYLVANIA

Senator SPECTER. Thank you, Mr. Chairman.

There is no doubt that we ought to do everything we can to protect intellectual property rights. When Mr. Barrett testifies that high-tech is losing $12 billion a year, the thought crosses my mind what can be done to protect high-tech's copyrights. And when we talk about $2.5 billion in losses for content from entertainment, that is a staggering figure.

In reviewing the issues before this hearing, I am somewhat at a loss to figure out what this committee can do to make a constructive contribution. The legislation which is being circulated would require computer and consumer electronics manufacturers to embed copyright protection technology in all digital devices, from computers to compact disc players to video players. But the problem that I have is what does technology offer to meet that standard. As I review the literature, there are some technological devices, but as Mr. Barrett points out, if it is on the Internet there is nothing that has yet been devised.

So what is the point, starting with you, Mr. Barrett, for Congress to get into this thicket and to require technology to solve a problem when the technology doesn't exist?

Mr. BARRETT. Well, I have a similar problem with that proposal that you read. I think that was from Senator Hollings' bill, or proposed bill. I don't think the technology exists to differentiate between lawful content, legally-produced home video, audio, what have you, and pirated content; that is, content which is not protected at the source such as we were just talking about.

To differentiate between those on the Internet, you either have to outlaw legal content such that you could try to track down all content and do something with it, or you have to do the fingerprint analogy that I was mentioning. You would have to monitor all Internet communications and, on the fly, try to match content to see if it is copyrighted and unprotected and should not be allowed to pass.

Senator SPECTER. Well, this hearing brings to my mind a hearing we had about 20 years ago on VCRs. I reminisced with Senator Biden. When he chaired the committee—I think it was about 1982—we were worried about what we were going to do there. We were going to have VCRs which didn't pick up the commercials and there were all sorts of concerns.

I want to direct this question to you, Mr. Kraus, representing consumers here. As concerned as we are with intellectual property rights in the movie industry and high-tech, we are perhaps even more concerned with the consumers. There are certainly more voters among the consumers.

If we can develop technology which would meet this standard to have computer and consumer electronics manufacturers embed copyright protection technology in all digital devices, is it within the realm of technical possibility to have the technology such that it accomplishes that but allows consumers to use it for their own private purposes?

Mr. KRAUS. That is a good question. I don't know the answer directly because I am not familiar with the entire spate of technological solutions that are all being proposed.

What I would advocate generally, though, is that we need to clearly define a set of consumer rights and then let the market adjudicate and decide what solutions best respect consumers' rights and copyright-holders' rights. Currently, consumers' rights aren't well enough defined to allow, I believe, the market to work successfully to develop technologies which respect both parties' rights.

So that is what I happen to believe is an appropriate solution, is adequately defining consumers' rights. We already have adequate definitions of what the content owners' rights are. With those two rights in place, I believe the market will find technological solutions that can respect them.

I wanted to also touch on the notion that the software industry has seen this movie before. As you have reflected on the VCR, you have seen this movie before. The software industry has been dealing with piracy for a very long period of time. As Mr. Barrett pointed out, $12.5 billion is lost to piracy per year in the software industry.

In the mid-1980s, the software industry decided to impose strict copy controls on most software packages. What happened? It isolated and alienated paying customers. It didn't stop piracy. It actually made the paying customers more angry, and I would say we are currently seeing that movie again.

We are implementing copy protection controls on consumer media, for which I understand the motivation, but in the end we are alienating the actual customers who then pay for that media and not actually having the impact on piracy that I think we would all like to see.

Senator SPECTER. Let me come back to the legislation which is currently being circulated. I would be glad to get behind any legislation which would protect intellectual property rights. I am all for it, but the proposal to have the Secretary of Commerce come in, if there cannot be agreement among the parties to these kinds of controversies, really raises a question in my mind. Very frequently, the Congress does its best when it does nothing.

Are we better off if we let the market work through and let the market seek the technological devices? If the market comes up with them, then there may be some inclination on the part of the parties themselves to resolve it. Very frequently, when we get into it, we cause more problems than we solve.

Mr. Parsons, you have had a chance to catch your breath. What do you think?

Mr. PARSONS. Well, Senator, first of all let me start as I frequently find myself with my wife having to start, with an apology, and that is for being late to this hearing.

Senator SPECTER. Mr. Parsons, we understand you came by air. If you had been on Amtrak, you would have been here on time.

Mr. PARSONS. If I had walked, I would have been here closer to the time than coming by air this morning.

Chairman LEAHY. I would tell the Senator from Pennsylvania and the Senator from Delaware, who are both strong supporters, as they should be, of Amtrak, that I had already put in a plug for Amtrak even earlier.

Senator SPECTER. We may have some problems with the Hollings bill, but we have no problem with funding Amtrak, Mr. Parsons. [Laughter.]

Mr. PARSONS. I think the proper response is message received.

I think, Senator, that the question you are raising about whether there is a helpful and useful role for the Congress here is the right one. Our view—and if I am going to be permitted in a minute to give my statement, I will expand on this a bit, but our view is that this is primarily an area that should be worked out in the marketplace; that the entertainment industry, the information technology industry, the consumer electronics industry and the software industry have got to get our act together and we have got to work hard to deal with these problems because it requires that degree of suppleness and flexibility.

There are, we believe, a few areas where discreet, incisive help from the Government in the form of taking—we can take the ball to the five-yard line in some instances, and I will explain a little bit more of that in a minute, and to get it over the goal line we may need some help from the Government. But I don't think that this is a situation where government action should try, with a sword as opposed to a scalpel, to administer the surgery.

I think we have work to do. We are doing a lot of work right now on a cross-industry basis, but there are a few discreet areas where some governmental assistance could prove helpful.

Senator SPECTER. Well, thank you, Mr. Parsons. We are ready, willing and able to help out, but I think we have to know what the technology is if we are to legislate.

I would like to come back later, Mr. Barrett, to this issue of the $12 billion which high-tech is losing. That is an intolerable situation. We want to protect your property interests so that you can continue to produce, and I think that if we can find the technology Mr. Kraus suggests we may be able to protect the consumer interests as well.

Thank you very much. Thank you, Mr. Chairman.

Chairman LEAHY. Thank you.

I know Senator Biden wants to leave. Do you want to say something?

Senator BIDEN. Sixty seconds.

Chairman LEAHY. Sure.

STATEMENT OF HON. JOSEPH R. BIDEN, JR., A U.S. SENATOR FROM THE STATE OF DELAWARE

Senator BIDEN. I want to explain that I promised the National Conference of Mayors I would meet with them at 11:30, and I will try to come back and I would ask that my questions be submitted to the panel if I am not back and just state that it seems to me

there is a philosophical divide here. I want to make sure I understand it.

It is one thing for us to be in a position where we make a distinction between what is inappropriately and illegally copied and what is legally and appropriately copied. That is a heck of a dilemma, but also in the case that we were faced with in the bad old days when I was chairman it was about whether or not we were going to force the consumer to have to listen to something, force them to listen to ads.

This is about balancing equities here, consumers versus what is obviously an aggrieved party here. Whose responsibility it is remains to be seen, but I suspect—just so you know, we do have laws. If you all in the software industry and the computer industry were to manufacture those little wands and you could go up to the Texaco station and illegally get gas out at two o'clock in the morning, we would arrest you for that.

If you were making keys that I brought in to you to get into other people's homes, we would arrest you for that. If you were taking little clickers into garages and me getting a hold of one and asking you to produce one with the same frequency, knowing it wasn't my garage, we would arrest you for that. We should think of arresting you maybe for some of the things you don't do, but that is a much larger question here and there is a balancing of equities here, unlike before. But I have an open mind on the Hollings bill and I will try to come back and hear what you all have to say.

Thank you, Mr. Chairman. I know you have questions. By the time you finish, maybe I will be able to get back. Thank you.

Chairman. LEAHY. Thank you. That was 60 seconds.

Senator BIDEN. No. It was probably 120, but it was close.

Chairman LEAHY. Mr. Parsons, we are delighted that you are here, and I do appreciate the fact that you went through a great deal to get here. Having sat frustrated on runways before, I know what that feels like. Jill Loesser has made sure that we knew you were coming, and you can feel free to give your statement now and then we will resume the questions, first with Ms. Cantwell and then Senator Hatch, and then I will ask my questions.

STATEMENT OF RICHARD D. PARSONS, CHIEF EXECUTIVE OFFICER DESIGNATE, AOL TIME WARNER, INC.

Mr. PARSONS. Thank you, Mr. Chairman. Again, apologies to you and the other members.

Chairman LEAHY. None necessary. There isn't a single member of this committee that hasn't been stuck on a runway at some time or another.

Mr. PARSONS. I want you to know that I have scrubbed off the side of our plane the logo, "Leave time to spare, travel by air." It is Amtrak all the way.

Chairman Leahy, Ranking Member Hatch, and members of the committee, I am actually very grateful for the opportunity to discuss an issue of great importance to my company, and I believe to our country. As the world's largest producer of information and entertainment, we at AOL Time Warner are also a leader in developing and utilizing digital technologies for the delivery of content

in innovative ways. So we really sit on both sides of the issues that are being discussed today.

Whether it is in the journalism of Time, Inc., Time magazine, CNN, or a movie like "Harry Potter" or in our music or our television programming, compelling content, we know, is what consumers want. But the continued availability of high-quality content cannot be assured unless we can do it in a manner that is safe from piracy.

This committee has a special awareness, and I believe a special competence, for not only understanding how essential it is to protect intellectual property, but for understanding the role that the Congress can play in that regard. Through the Digital Millennium Copyright Act, you helped establish needed and balanced legal protections for our industry.

Digital technology offers significant benefits to content creators, to distributors, and above all to consumers. It makes possible a new level of reliability, variety and quality in the delivery of content. But this silver lining comes with a cloud. Along with breakthrough benefits, digital technology enables users to make unlimited, perfect copies, and distribute them globally with the click of a mouse.

If I may, Mr. Chairman, I would like to show you an example of what we are talking about. This is a high-quality pirated version of "Lord of the Rings" that was available on the Internet literally hours after the theatrical release of the movie.

[Video shown.]

Chairman LEAHY. I liked it better watching it at the Uptown Theater, but I got your point. I understand.

Mr. PARSONS. So did I, but it gives you some sense of the quality and vitality of what digital piracy can do in terms of capturing images and sounds and music, and enabling people to see it without having to go to the Uptown Theater.

I read a story in the Times this morning that suggests that this is a battle between the entertainment industry and the tech industry, and that it is all about the entertainment industry's business model. I would submit that what is at stake here goes beyond copyright protection. It is a far broader question of property protection and notions which are fundamental to the functioning of free markets generally.

If we as a society decide that there are certain areas where the rules against taking someone else's property without permission don't apply, we are not merely destroying the livelihood of a relatively few creative artists, or even subverting the economic rationale of a few large businesses. We are opening the door to economic anarchy that can undermine our markets.

Now, at AOL Time Warner we have vigorously pursued the legal remedies that exist, but I must tell you litigation alone isn't enough. We need to protect intellectual property at the source and at all places where consumers have access to it, and to do so in a way that reflects the commitment of everyone involved to the development of meaningful protection for intellectual property even in the face of technological advance.

Our goal is both to stop piracy and to offer consumers the easiest, most convenient access to digital content. We have worked

with our colleagues in the information technology and consumer electronics industries over the past six years to develop content protections. And we have done a lot. We have accomplished a great deal in this cross-industry voluntary process and we are continuing to work together to meet new challenges.

Sitting beside me today is Craig Barrett, whom you have already heard from, from Intel, which is one of the most committed and productive partners in our quest to protect content in the digital environment. Indeed, Intel along with other companies has spent considerable resources developing technical solutions which we have enthusiastically embraced. We look forward to continuing to work with Intel. In fact, we are collaborating with Intel to develop a written statement that articulates common principles to guide us. We hope to release that statement very soon.

Some have asserted that new digital protection technologies will hamper consumers' ability to enjoy content in legitimate ways. The basic economics of our business plan plainly contradict such an assertion. The easier and more convenient we can make legitimate access, the greater the financial return. If we deny that access or make it burdensome or overly restrictive, consumers will either stay away or go elsewhere.

We want those who purchase our products to be able to enjoy them in flexible, personalized and portable ways, and we believe in fair use. Under the content protection licenses negotiated to date, consumers will not only be able to continue to make analog home copies, but also to make protected digital copies of over-the-air broadcasts, basic cable, satellite and pay-TV offerings.

We continue to make real progress in cross-industry content protection and are not calling for a broad government mandate of design requirements. Instead, it has become clear to us that some gaps exist that cannot be closed solely through license-based voluntary protection systems, as I was saying to—he is gone now—Senator Specter. These gaps are treated at length in my written testimony and I won't burden the committee with a recitation of them here, but just touch on them quickly.

There are really three, and on the first two I think we have made a lot of progress. The first is how to protect digital over-the-air signals that are in the clear and can be captured and copied. We think that we are working toward a definition of a broadcast flag that will mark those signals and keep them from being digitally reproduced, and that is an area where some government assistance may prove necessary.

The second, which is the so-called analog hole or a situation where analog content which is in the clear can be then converted into digital unprotected content, we are working on and think we are making great progress in terms of watermarking techniques that once again might require some congressional legislation to enable us to get over the goal line. We have still got a little work to do.

The third area, which is the most troublesome, is misuse of peer-to-peer file-sharing to traffic in copyrighted materials. This is the most difficult problem to solve. Indeed, to call it file-sharing is a misnomer. It really isn't sharing; it is the equivalent of online shoplifting.

I think some of Senator Biden's examples aren't as far off the mark as they may have sounded to the uneducated ear because what this enables is for people to literally capture in digital format copyrighted materials and then share them with millions of people around the world, who will then have perfect copies for their use, all without respecting the rights of the owners of those copyrights.

The pace and reach of this illegal activity continues to increase, unfortunately. New peer-to-peer services such as KazAA, Morpheus and Grokster are flourishing on the Internet. We have studies that show that at any given moment anywhere from half a million to a million people are simultaneously using one of these services and networks to find, reproduce and redistribute files, mostly in violation of the rights of underlying copyright owners—something on the order of 90 percent.

Now, no single approach, technical, legal, legislative or economic, can provide a solution, we feel. The active cooperation and committed participation of all industry sectors—the content sector, the consumer electronics sector, the computer and IT sector, and the service providers—will be necessary to develop a range of workable solutions.

The main impetus will come from the business sector, and we endorse working cooperatively with our colleagues across the relevant industries. Yet, it is clear that at certain critical points our work must be complemented by targeted government action to support the solutions that the private sector develops, and to make them uniform in the marketplace.

Chairman LEAHY. You realize that those targeted government actions is where the rub is going to come in?

Mr. PARSONS. I do, I do, but I am confident that we can work together, first, as an industry. I love coming to talk to the Congress because it is all lawyers. It is like "who has the burden of going forward?" I think the industry, on a cross-industry basis, has the burden of going forward here, of developing a set of workable solutions that have the appropriate degree of flexibility.

Chairman LEAHY. I do, too, and I also think that the industry—as I said before you came in, I would hope that they would keep Senator Hatch and myself and the committee apprised of what you are doing.

Mr. Barrett pointed out that people talk about economic losses to the software. What were the numbers you gave me, Mr. Barrett?

Mr. BARRETT. About $12 billion a year.

Chairman LEAHY. Twelve billion in piracy. The entertainment industry has piracy, too, but not of that amount, but both have an incentive. I want to protect the rights of producers and artists.

I loved the movie "Harry Potter." I enjoyed it as much as anything I have seen—I don't mean "Harry Potter," but "Lord of the Rings."

Mr. PARSONS. Actually, both.

Chairman LEAHY. I liked them both, but "Lord of the Rings"—I am a big Tolkien fan. I think I have read everything he has ever written, sometimes more than once, and I enjoyed that very much. But I also know that the company basically bet the farm in filming all three parts of the trilogy when they did it, and they should be protected in doing that.

Now, they could have made a lousy movie and it goes down the tubes. That is their problem; that is business. But if you make a good one and they are going to make money, they ought to be able to get the advantage of it. At the same time, if Intel or IBM or anybody else makes software chips or whatever it might be and if they have spent the hundreds of millions of dollars to get there, they ought to be able to sell it.

Now, somebody might not like what they make. They lose money; that is their problem. On the other hand, if they have got something that people really like, they ought to be able to make a profit on it and not suddenly find in other parts of the world or in our own country that somebody ripped it off and is selling it just for the cost of producing it, not the cost of developing it. As Mr. Barrett knows, there is a whale of a difference between the development costs and the production costs.

Thank you, Mr. Parsons.

[The prepared statement of Mr. Parsons follows:]

STATEMENT OF RICHARD D. PARSONS, CEO DESIGNATE, AOL TIME WARNER

Chairman Leahy, ranking member Hatch, and members of the Committee, it is a pleasure to appear before you today and have the opportunity to speak about such an important issue. As the world's first Internet powered media and entertainment company, AOL Time Warner ("AOLTW") is uniquely positioned to address the challenges and opportunities of the digital age. We have been a leader in developing digital technologies for delivering information and entertainment in new and innovative ways. Warner Bros. was the pioneer of DVD for video and Warner Music Group was the pioneer and first major record company to adopt the new DVD audio format. HBO was the first premium channel to offer nationwide high definition digital television. Time Warner cable has long been leading the way with digital video on demand. CNN.com offers a 24-hour news service over the Internet. And AOL is the world's leader in interactive services, Web brands, Internet technologies and e-commerce services with over 33 million subscribers.

At AOLTW, we live with competing business models and interests every day. But we are certain of one thing: Compelling content, be it Harry Potter or an interactive textbook, is what consumers want. Good content fuels the creation of new distribution businesses and the innovation of new products and equipment. And the continued availability of high-quality content depends in this digital age on the ability to protect that content from piracy. Therefore, as you begin examining these issues, I urge you to be guided by the fundamental principle that guides our own business decisions: strong and effective protection of intellectual property in both traditional and new environments is essential.

But this Committee knows that. You are experts on intellectual property protection, and through the Digital Millennium Copyright Act gave intellectual property owners important and balanced legal protections we rely upon as we innovate new digital business models. Digital technology offers significant benefits to content creators, distributors, and above all, consumers. It makes possible the delivery of higher quality in a wider range of formats and with greater reliability. Along with these benefits, however, it also poses substantial risks. Digital technology provides the ability to create quickly and easily an unlimited number of perfect copies, and allows for the global distribution of such copies with the click of a mouse. This obviously poses particularly damaging and challenging piracy risks. Our goal is both to stop piracy and to offer consumers what they want in terms of access to digital content. Before we get to the solutions, however, let me show you an example of the piracy we are facing—a high quality pirated version of Lord of the Rings that was available on the Internet while the movie was early in its theatrical release.

We know that most consumers want to see continued creativity and are willing to pay a fair price for content. Unfortunately, right now, with the advent of services like Napster and more recent peer-to-peer file swapping sites, a generation of young people is growing up thinking it's all right to steal. At an average cost of $80 million per movie, that is simply not O.K.

Therefore, protection of content must apply pragmatically in the real world and not depend solely on legal remedies to be pursued in the courtroom. Instead, it must

reflect a commitment by all contributors in the value chain to develop robust marketplace alternatives that protect content while enabling technological advancement. In order to achieve such effective protections, we have reached out and worked with our colleagues in the information technology (IT) and consumer electronics (CE) industries over the past six years to develop various content protection technologies. We are far from done, but we have come a long way and are hard at work to meet the new challenges before us.

I am pleased that sitting beside me today is Craig Barrett, from Intel. Intel has been one of the most dedicated and productive partners in the quest for protecting content in the digital environment. Indeed, Intel, along with other IT and CE companies, has spent considerable resources developing a number of technical solutions. We at AOLTW have enthusiastically embraced these solutions and we thank Intel for its past efforts and look forward to continuing to work together.

Here's an idea of how much we have accomplished so far through collaborative industry work: an encryption system to protect DVD video, a technology to protect content passed through device-to-device connections in home networks, a technology to protect content as it moves from computers to display on a monitor, a technology to protect DVD audio, and a technology for making recordings for home use that inhibit the potential for digital piracy.

The cornerstone of these cross industry efforts has been the following principle: to the greatest extent possible, copyrighted content delivered digitally should be protected with access control technologies, such as encryption, from the first point of distribution. Because the content is scrambled, only those devices and services that have the authorized keys may unlock it. To receive the keys, such devices and services must follow conditions regarding proper handling and usage of the content. These conditions are negotiated among technology providers, content owners and device manufacturers in license agreements, through a market-driven and voluntary process. Enterprising companies develop the technologies and the licenses are negotiated in private-sector negotiations. Content owners may choose whether or not to use any of the technologies, and product manufacturers are free to choose which, if any, of these access control measures they wish to enable on their devices in order to receive encrypted content.

The technologies already developed and implemented by these private sector efforts have made possible new and attractive formats for delivering content to consumers. The DVD format stands out as a primary example. Consumers have enthusiastically embraced it and have adopted DVD much more quickly than any past format, including CDs for music and VHS for video.

Some have asserted that content owners will use these new digital protection technologies to lock our content in some type of "lock box," denying many consumers the ability to view or enjoy it. This is simply illogical. Our businesses thrive upon building as wide an audience as possible for our works. Others have hypothesized that the new content protection technologies will overreach and deny consumers any ability to make home copies. Again, they're wrong. Keeping customers satisfied just makes good business sense. We want those who purchase our content to have the ability to enjoy that content in a flexible and portable way in their homes. In fact, under the content protection licenses negotiated to date, consumers will not only be able to continue analog home copying, but also to make protected digital copies of over the air broadcast, basic cable and satellite and paid television such as HBO.

We are proud to have made the strides we have to date. So, having made a good deal of progress in our cross-industry content protection efforts, what do we see as government's role? Simply put, it is filling the gaps. We are not calling for a broad government mandate of design requirements across the spectrum of products, devices and services.

Instead, it has become clear that certain significant gaps exist that we cannot solve through license-based, voluntary protection systems since it is impossible to require all manufacturers to join the effort. These gaps occur when content is either initially delivered without access controls (i.e. "in the clear"), or later converted into unprotected formats. Let me explain the first of these gaps: over the air broadcasts are delivered in the clear, with no access control. Therefore, there is no way to ensure through private sector technology licenses or any other contractual means that all devices which receive such content protect it against unauthorized digital reproduction and distribution.

Significant work has been undertaken by industry to develop a method for identifying copyrighted broadcasts with a "broadcast flag" that accompanies the signal to indicate that the content should not be redistributed over the Internet. In order to ensure that devices that receive the broadcast signal obey the flag, there must be a legal requirement to detect and respond to it. We believe that such a requirement can be accomplished by narrowly focused government action. It appears that our

partners in the CE and IT industries agree that this targeted government action is both necessary and desirable.

An even more critical and systemic problem is what we call the "analog hole." Video content, even when delivered digitally in a protected manner, must be converted to an unprotected analog format to be viewed on the millions of analog television sets in consumer homes. Once content is "in the clear" in analog form, it can be converted back into a digital format which can then be subject to widespread unauthorized copying and redistribution, including over the Internet. This problem applies to all delivery means for audiovisual content, from DVDs to pay per view, to over the air broadcasts.

One way to plug the analog hole is through the use of watermarks. A watermark is a way of embedding information in the content about its copyright status and permitted uses. The watermark is not perceptible to the consumer, but can be detected by devices. Furthermore, because the watermark is embedded, it is securely tied to the content and survives digital to analog to digital conversions. If devices that are capable of converting analog signals into digital form are designed and manufactured to detect and respond to the watermark, then the content can be appropriately protected.

As with the broadcast flag, private industry efforts are underway to develop and select a consensus watermark. These efforts have been hampered, however, by patent disputes involving various parties that own watermark related intellectual property. Because a single watermark must be agreed upon, if private industry selection efforts fail, we are likely to turn to the government for guidance and assistance. Once a watermark is selected, some government action will be needed to require appropriate detection of and response to the watermark. In our view, effective government action can be narrowly focused on the particular devices or portions of devices that are capable of receiving an analog signal and converting it into digital. No broad mandate concerning the overall design of computers or consumer electronic devices is necessary.

Now let me turn to an additional serious problem that remains to be addressed. The peer services and networks (including over the Internet and over broadband networks on college and university campuses) is rampant and exponentially growing. The popular unauthorized multiple reproduction and redistribution of copyrighted content over peer to term "file sharing" is a misnomer; this activity is equivalent to online shoplifting, in fact it's worse than shoplifting because it doesn't simply involve taking a copy for oneself, but distributing multiple copies throughout the world to others.

AOLTW, along with the rest of the content industries, has pursued its legal remedies in a number of cases, most notably the Napster litigation. However, the pace of illegal peer-to-peer activity has grown considerably. A host of new peer-to-peer services, such as KazAA, Morpheus and Grokster, have flourished on the Internet. Studies have shown that at a given moment 500,000 to 1 million users are simultaneously making use of these services and networks to find, reproduce and redistribute files. If the past activity on Napster serves as any guide, approximately 90% of the activity on these services consist of unauthorized trafficking in copyrighted works.

To date, the music industry has experienced the most dramatic impact from this digital piracy because sound recording files are much smaller and easier to copy and redistribute than are files of motion pictures and television programs. Record and CD sales were down 10% last year. In 2000, the top ten albums sold a total of 60 million units; in 2001 they sold 40 million units. And in 2000, 7 albums sold over 5 million units, whereas in 2001 none did. Because the world's largest music publisher, Warner/Chappell, as well as one of the five major record companies, Warner Music Group, are part of the AOL Time Warner family of companies, we are deeply concerned about the effects of peer to peer piracy on music.

Advances in broadband and compression technologies mean that audiovisual works will soon be subject to such severe levels of online piracy, and that piracy of music will become even more extreme, unless this serious problem is brought under control. The Lord of the Rings clip I showed you earlier was downloaded from a peer to peer service.

Solving this problem is the most complicated we have experienced to date. One contributing factor is the growing variety of increasingly decentralized peer to peer networks (e.g., Morpheus, Limewire, etc). Another is that content reaches peer to peer networks from a variety of sources including unprotected distribution (e.g. "ripping" from CDs), circumvention of protected content, and camcording from theater screens. No single silver bullet—technical, legal, legislative, or business—can provide a solution to this thorny form of piracy. The active co-operation and committed participation of all industry sectors—content, consumer electronics, computer, and

service provider—will be necessary to develop a range, of solutions. Accordingly, content owners will need to share in the responsibility of finding the sources of unauthorized distribution. We do not yet know what type of government measures may be called for, but some assistance will likely prove necessary to supplement private sector efforts to bring this piracy under control and to create a more secure environment for content delivery.

In conclusion, while the issues are complex, we believe that the lead must come from the private sector, complemented where needed by targeted government action. I believe that others share this vision, and hope that we can work together cooperatively with each other and with Congress to make it a reality.

Chairman LEAHY. Senator Cantwell has waited very patiently, and again I will not ask my questions yet, but I would like to give her a chance to ask questions. As I have noted before, we rely a great deal on her expertise in this field.

Go ahead.

STATEMENT OF HON. MARIA CANTWELL, A U.S. SENATOR FROM THE STATE OF WASHINGTON

Senator CANTWELL. Thank you, Chairman Leahy. I think maybe somebody fell off their chair back there when they realized how much software piracy there was.

I want to thank this distinguished panel for being here. I can't help thinking, Chairman Leahy, that this is a very different panel and set of information than we got probably from the Commerce Committee. I don't know if there is a way for these two panels to meet or information to be shared, but I would at least say that that information was at least as interesting as last night's Fox celebrity boxing match.

Chairman LEAHY. Did you watch that? [Laughter.]

Senator CANTWELL. I can't say that I did.

Mr. KRAUS. She taped it for later viewing.

Senator CANTWELL. I do think that there is some very interesting information being presented here this morning and it is very different.

I would also like to note one other irony about this particular situation, and particularly as it relates to this committee, and that is not too long ago we had a similar hearing where the shoe may have been a little bit on the other foot, where some of the service providers and hardware manufacturers were coming in and saying we don't have enough content for these legitimate models, and when is the entertainment industry going to come forward and produce the kinds of agreements and the kind of content that we need to make these models work?

In fact, Senator Leahy, you and Senator Hatch, I think, did an excellent job of looking and nudging, but restraining ourselves from at that point in time let's have a compulsory license and mandate that the content providers provide this much content to these service providers and to these hardware device people. So now the shoe is on the other foot, so I think it is very interesting.

I think that I would warn the committee in making sure that we do not get government involved in a particular area where government is providing a solution and, in fact, picking technology winners and losers.

I know we have entered into the record Walt Mosberg's column from this morning, but I think one paragraph of that is worth reading, where he says, "So these media companies have legitimate

problems. Unfortunately, they are trying to solve them with new laws and private industry pacts that would build copy protection mechanisms to every personal computer and digital recording and playback device on the market. That would mean severe limitations on consumers' long recognized right to unlimited personal, non-commercial use of legally purchased copyrighted material."

So I think that what we are really talking about here is the question about how we are going to come to this solution, how we are going to come up with a technology solution that is very hard to do. Ask the music industry. They had—I don't know what it was—2½, 3 years of SDMI in the process going over these very thorny issues. The Copyright Technical Working Group has been pushing through some of these same very tough issues and are trying to come up with the answers.

I think it is important to think about where we are going. If we have had this much energy into what is really—I think, Mr. Parsons, you said it best, a complex set of solutions, and actually some very technical solutions yet to come. Where are we going to find the best answers to those technical questions? From a government agency or from competition within the industry? I am sure, as we speak, there are hundreds of developers out there working for a variety of different companies who will reap huge dividends when we actually do break through on some of these issues.

[The prepared statement of Senator Cantwell follows:]

STATEMENT OF SENATOR MARIA CANTWELL

I want to thank the Chairman for calling this hearing. The question of digital rights management is at the core of digital convergence and the process of developing standards will test every industry's ability to come together to fully benefit from the technologies that are so changing and improving products and services, and ultimately our culture and economy.

We are in a transition, moving from an analog to digital world. Everyone is recalibrating—and it is a challenge.

We in Congress have a responsibility to make sure that the appropriate balance is maintained—that owners and users of intellectual property have the appropriate rules to live by. The best way to maintain the balance is through consensus, not government mandates.

For several years, the Content Protection Technical Working Group has been working to develop consensus-based copyright protections that balance the needs of content creators, equipment designers and consumers. I want to urge continued progress, not conflict; compromise, not mandates.

I want to see industries continue to work together, to resolve the complex technical issues as rapidly as possible so we can move the ball forward on all the new services that are the promise of the Internet. This is not something the government can decide.

Let me make a very important comment: piracy is abhorrent to me, and I am truly disturbed by the scale of music piracy.

But technology serves many legitimate uses. As copy protections for movies and music are developed, these other uses must also be given consideration.

As content protection standards are developed, we must assure that they facilitate, rather than interfere with the innovation; and facilitate, rather than interfere with the consumer's ability to fully enjoy new products and services.

The question to me is not whether there should be copy protection, there must be.

The real question is *how* protection standards should come about; whether technology standards should develop in the marketplace or whether the government should make the decision. The government should not be picking technology winners and losers.

I look for-ward to hearing today from our witnesses on the progress the industries have made toward delivering the content and services the Internet promises to consumers.

Senator CANTWELL. A couple of things that concern me and I think speak to the complexity of the challenge of getting these solutions are some of the issues that are already out there on the table, and I guess I would like to direct my questions to those.

First is the issue of the watermark. Mr. Kraus, you talked about this, but I want to make sure that I understand, in plugging the analog hole, exactly how that solution might work because there are a couple of things that I do now and there are a couple of things my colleagues do now and I am not sure we would be allowed to do them anymore.

For example, when I am home in the State and often generate news, but yet fly back here to Washington, D.C., I don't always get to see it. So my staff will copy the six o'clock news, the stories that I am involved in, and because we have many stations throughout the State, thank God, that do cover the things that we do, they will compile that onto a CD and actually give that to me and give it to the other people in the delegation so that we can see how the coverage of our news events went. With a watermark solution, that kind of content could be blocked and that individual use may be prohibited.

The second area, and I hope I am not going to get anybody in trouble here, but the Sunday morning shows are quite popular around here, but not everybody likes to spend their Sunday morning watching them. So, consequently, the Democratic network here, which is the network that runs on our Democratic TV through our offices—on Monday morning when we come back, all those Sunday shows are copied and put on a loop so that if we happened to miss those Sunday shows, we can come back and watch them in our office on our television set.

Again, I think that the analog hole that we are talking about and a watermark solution would prohibit, if somebody implemented this watermark, us from doing that kind of activity. Is that correct?

Mr. KRAUS. The short answer is I do not know all of the details of the analog hole watermark fix, but I do know that as we sit here I do not believe that it is clear enough what a consumer's rights are such that any technical solution will make sure to respect them.

Because there is significant disagreement about whether fair use exists or doesn't exist, or the extent to which fair use itself does exist for those who may agree that it does exist. I believe that, again, our organization is promoting the notion of a consumer technology bill of rights not as a way to mandate any technical solution, but rather to say that any technical solution that comes up must respect the intellectual property desires of the content creators, but also must respect the fair use rights of consumers.

So, shortly put, I don't know all the details of the analog hole solution that are being proposed. My sense is a solution should be to clearly define consumers' rights in order to make sure that the market develops technological solutions that are satisfactory to both consumers as well as content providers.

Senator CANTWELL. Mr. Barrett, isn't that the challenge, to come up with a technical solution that protects content in what you want to, but allows that fair use, and that it is very hard to come up with digital bits that will do that?

Mr. BARRETT. Absolutely, but you could, for example, put into your flag or watermark that this content could be copied "x" times only, and therefore promote some form of consumer fair use. Beyond those "x" copies, the rule contained in the watermark or the flag would basically not let it be copied again.

I wouldn't pretend to proclaim whether or not the Democratic network here is legal or illegal in terms of redisplaying copyrighted work, but you can put rules into the system which would allow the consumer to, in fact, reproduce legal fair use consumer expectation copies of the content, but not allow unlimited copying of the content.

Mr. PARSONS. May I, Senator, because I do think the entertainment industry has a perspective on your question, and that is the things that are sort of anti-consumer in terms of the way consumers like to use and consume content that they have paid for or acquired legitimately are not good for the entertainment industry either. In other words, we want consumers to have easy and flexible use.

So for things like copying broadcasts or any of the home uses that currently are available, you can tune the technology—as Mr. Barrett was saying, you can tune the flags or the watermarks to permit certain things and not to permit certain things. What we are seeking to do in these inter-industry discussions is to fine-tune the technology so the kinds of things that you are talking about would continue to be permitted, but the things that are really sort of odious and disruptive of our ability and the artists' ability to monetize the fruits of their labor—namely taking those copies, posting them on the Internet, and then zipping it around the world to anybody and everybody who wants to share it—would be blocked.

I mean, I think you can think of the home as a boundary limit. What goes on in the home and what you are currently permitted to do in the home, we can seek to tune the protective technology to allow you to continue to do that. But the sharing of this with massive numbers of other people is what needs to be interrupted.

Senator CANTWELL. I should just say I very much support strong piracy legislation and stopping piracy. It is critically important that we do that.

I have, Mr. Chairman, one quick follow-up question that I just want to make sure that I understand. We have had some discussions with people—and maybe, Mr. Parsons or Mr. Barrett, you know the answer to this, but I think there is at least some dialogue and talk out there that maybe a possible solution to this is somehow picking a technology winner somehow, government would say, and that this ought to be a royalty-free standard.

Is that something that we have discussed, because I don't quite understand that notion of a royalty-free standard in the sense that the content is all about protecting intellectual property? Somehow, these very bits that are going to protect that intellectual property are also intellectual property, and I don't know that the people who produced the content went to a better school or are smarter or something and their content should be protected and paid for, but the content that is the software bits somehow should be free. I am confused there.

Mr. BARRETT. I don't think you are confused. I think you understand the situation very well. [Laughter.]

Chairman LEAHY. I think the Senator understands it very well, too.

Mr. TAPLIN. I would also say one thing about this idea of picking a winner.

Senator CANTWELL. So are people talking about royalty-free?

Mr. TAPLIN. We have heard this, yes. You know, we work very closely with Warner Brothers and Chris Cookson, who is their senior technologist, and their idea is to not have a single DRM standard, but have multiple DRMs so that if one got hacked, the other could be replaced very quickly.

I think the idea of having a winner technology that is a worldwide DRM standard would make it a target for every hacker all over the world. I would much rather have multiple companies competing in the marketplace to bring really robust technologies that companies like Warner's could easily switch out and constantly protect their content and stay one step ahead of the hackers.

Senator CANTWELL. Well, Mr. Chairman, I know we have to move on, but again I want to thank you and Senator Hatch for having this hearing and for the important role that the committee has played. I think that this committee has fostered a lot of dialogue and on both sides pushed the industry together to have dialogue, but has not mandated or sought to mandate compulsory licensing on either side, and I think that is important.

Chairman LEAHY. Thank you. Well, I thank the Senator from Washington State also for the contribution she has made not only today but in the preparation for this hearing.

Senator Hatch, who has been good enough to try to juggle two different hearings this morning, is back, and rather than take my time on questions I yield to Senator Hatch.

Senator HATCH. Thank you, Mr. Chairman. I appreciate it, and I appreciate having all of you here. I haven't been able to hear all the testimony, but I will read it all. We know that this is a very well-balanced panel.

Mr. Parsons and Mr. Kraus, one of the reasons why online music fans have enjoyed the unlicensed music sites is that they have very deep offerings, including many hard-to-find, out-of-print songs that are not economically viable in the brick-and-mortar music world. It may be that they are not available on the major label-sponsored sites at this point because it is simply not worth the investment to clear the rights.

While exploiting such music may not be worth the cost to major labels, there still may be fans who want it or the recording artist may find it worthwhile to exploit it online themselves, as a number of young artists do who haven't made it yet, and others as well.

Would it make sense for us to work on a way to either more easily clear the rights for such music so that we could use it online or allow the original artists to take ownership of the recordings to exploit online themselves? If so, would you work with me on that?

We will start with you, Mr. Parsons. It has been estimated there are millions of these tracks out there. Whether there are or not, I don't know, but there are supposedly millions of them that probably will never be heard, and if you took a battalion of attorneys

you probably couldn't clear them all off, and the costs might be so great you wouldn't want to clear them off.

Mr. PARSONS. Well, I think the fact is that everything in anybody's catalog or library now in music has been digitized and is out there. It is all out there now.

Senator HATCH. But it is not all licensed.

Mr. PARSONS. Only a small, small fraction of it is licensed, and that is the problem.

Your question covered a lot of ground, Senator. Where you have an artist that hasn't been able to get exposure or hasn't been able to make a relationship with one of the music companies, or chooses not to because they feel that they have a different economic proposition or a different message to deliver and they want to have access to the Internet, we are all for that.

The problem is that right now virtually all the music available in the world is in the clear, and it means that it is subject to being captured and distributed without respect to the artist's rights, the underlying copyright-owner's rights, if someone else wrote the music, and the rights of the recording companies that have invested in it.

Now, as you know, because we have testified here before, we are willing and eager to work with you, and again on a cross-industry basis, to find a paradigm where the rules of engagement, the rules of business conduct, can be observed in the Internet space and in the digital space as they are in the analog space. So we stand ready to do that.

I don't know if I have answered your question because I don't know whether it was focused on rights of artists or rights of consumers.

Senator HATCH. It is focused on both—the rights that you have, the rights that you want to keep, and the rights that really don't mean anything to you that you could give back to artists so that they could do whatever they wanted to with songs that literally are not going to do anything. Secondly, it is too expensive to clear all the copyrights. Wouldn't it be better to give those rights back?

Mr. PARSONS. But why isn't that a matter of negotiation? I think what you are talking about is artists who have existing relationships with music companies, where someone else now has a claim that could block them from exploiting music that never saw the commercial marketplace.

Senator HATCH. I think what I am saying is that the labels hold many, many songs that are not available in stores, or never will be available for that matter, or even online. I think what I would hope is that out-of-print or hard-to-find songs could be made available to fans—there might be some fans out there—and give artists some value.

Mr. PARSONS. Listen, Senator, we entirely, and I personally, endorse that notion 110 percent. The Internet and digital technology is not just a threat; it is not just a bad thing. It is an opportunity. It is an opportunity to make out-of-print or out-of-catalog or out-of-store music available to people who may not go to music stores so you can expand the market and you can offer deeper, richer product offerings and you can help the artists who made that music. But we need to find a way to do it so that——

Senator HATCH. I think I am suggesting we ought to find a way to do it and we ought to do it really soon.

Mr. PARSONS. Well, we are happy to work with you, Senator. We have been toiling in that vineyard and I think we are making progress, but we are obviously not there yet.

Senator HATCH. Thank you.

Mr. TAPLIN. Senator Hatch, I would say also that that would apply to video as well.

Senator HATCH. Sure.

Mr. TAPLIN. We have seen the costs of storage of megabytes drop by almost 95 percent in the last 2 years, so that it would be technologically possible for us to put the whole 4,000-film library of Warner Brothers, many of which are no longer in any video store and no longer available on any network, and sell those to consumers for a reasonable price.

It just seems to me there is such a wealth of artistic content in America that isn't getting exposed. Now, not only is storage cheap, but bandwidth is so cheap that it is possible technologically to do all this now.

Senator HATCH. Mr. Kraus?

Mr. KRAUS. My perspective, Senator Hatch, I think is similar to yours, in that I believe this is really an issue of embracing the medium. So what do I mean by that? I would submit that while it is not the only driver of illegal music downloading, I believe that a major driver of illegal music downloading is the lack of choice and availability of legitimate alternatives.

For example, on services like Pressplay and Musicnet currently, many of the songs that you download cannot be burned onto a CD for listening elsewhere. In addition, as you have pointed out, the catalogs themselves are very thin. I am sure that is being remedied. At the same time, I believe that that lack of choice and the lack of what you can do in the medium once you download it is one of the things that drives people toward illegal downloading services.

Let me say that I know and fully respect that the content industry has every right to protect its intellectual property. Like I said in my testimony, I am a beneficiary of intellectual property myself. However, I want to contrast the approach and the statements being made with, I think, another existence proof, which is the software business.

Mr. Parsons in his testimony mentioned—basically, I think we have heard many times a very doom-and-gloom approach that says if all of this is allowed to continue at uncontained rates that there is going to be no more content to be produced. I would submit the software industry itself as a counter-example of that.

While there is a tremendous amount of piracy in the software industry, it is still a vibrant industry, and most software is distributed "in the clear." So you have an industry which is offering digital download in software. I can go to most sites and download relatively any piece of software. The same file-sharing networks that are used to steal music I can steal software from.

However, because there is consumer choice, consumers have legitimate options. I can go download, for example, an anti-virus program directly from Symantec legally and I could download that and

do with it on my computer what I wish. I can also download that same program illegally from Morpheus, KazAA, or Grokster.

My argument here is that the software industry has embraced the digital download medium, has recognized that piracy will likely be a forever bane, and is dealing with it by going after the pirates and shutting them down. We have an alternate approach currently, and I hope that will change, and I hope that will change by defining clearly what a consumer's rights are in order to encourage the content industries to put more media online, offer consumers more choice, embrace the medium, and work out technical solutions to solve the boundaries between consumers' rights and their own rights.

Senator HATCH. Well, I will submit other questions. My time is up. Thank you, Mr. Chairman.

Chairman LEAHY. Thank you, Senator Hatch.

Of course, I am always interested in the debates and the questions we get up here, and when I ask questions I am going to go to one thing. The entertainment industry came to us a year or so ago when the FTC came out and said that they weren't doing enough to self-regulate the advertising of violent entertainment to children.

There were all these requests for real tough governmental mandates on that. I was one of the few who said that we ought to let the market work this out, and I remember the entertainment industry saying it was great that somebody understood them. Now, we have the same entertainment industry coming in and saying, of course, we have got to have government standards and the industry can't work it out. It is an interesting thing and we are going to get into that.

Senator Edwards has been waiting and I will again withhold from asking my own questions.

Senator Edwards, go ahead. I have got to stay here anyway, so you go ahead.

Senator EDWARDS. Thank you, Mr. Chairman.

Chairman LEAHY. I feel this is probably going to be more pleasant than the Judiciary Committee meetings later today.

STATEMENT OF HON. JOHN EDWARDS, A U.S. SENATOR FROM THE STATE OF NORTH CAROLINA

Senator EDWARDS. Thank you, Mr. Chairman. Thank you for holding this hearing, and thank you to all the witnesses for being here.

Let me just make a few comments. I start with a core belief that I know has been recognized by probably almost everyone here that when people put creative energy and money and investment resources in creating a product, that product ought to be protected and protectable.

The level of piracy we are seeing is just completely unacceptable—10 million movies download every month. I saw a report that one Internet copying racket has 1.8 billion unauthorized downloads every month. Clearly, the music industry is suffering. The movie industry, I think, is extraordinarily at risk. This piracy is an enormous drain on a creative, dynamic, important industry for our economy and we have to stop it.

The second point I would make is that I think also this piracy is having an effect on other technologies, particularly broadband, because we know that broadband depends on the wide availability of content, content that requires broadband. We know that online movies are exactly that kind of content.

The movie industry is nervous, and I think they have reason to be, about selling movies on the Web because those movies can't be protected. So I think we know that fighting illegal copying not only benefits the movie and the music industry. It also, I think, will be important in promoting broadband and benefiting American consumers and American education.

Third, with respect to all these piracy problems—broadcast hole, digital hole, peer-to-peer systems—we all agree that it will be much better if the major players can work out the solutions on their own and that our role, government's role, is to enforce those solutions.

If private negotiations don't succeed, then government may well need to step in. My greatest hope is that you all will work this out and that our role will be limited to backing up and enforcing your agreements.

I really only had one area of questioning, and it has been touched on. I heard Senator Cantwell ask about it. I think another Senator earlier before I arrived asked about this subject, and it sort of goes to the fundamental question of what would need to be done to computers in order to provide the kind of protection that might be needed.

The way I view computers is they are an enormously powerful and flexible machine that has obviously had an enormous impact on our country. But there has been at least some suggestion from what I have heard that in order to protect against piracy there may be a need to change what some people would consider the fundamental nature of a computer.

I have trouble seeing that myself, but I am interested—and I know you all have touched on it at least tangentially when other questions were being asked, but I would love to hear what members of the panel think about that.

Yes, sir?

Mr. TAPLIN. Well, I don't think, quite frankly, anything needs to be done right now in the sense that there are really good, legitimate digital rights management technologies. There are at least three commercially available that not only allow a consumer to watch a specific piece of media for a specific period of time and not send it anywhere else and not forward it—and these technologies are being used by Time Warner in music downloading joint ventures, and being used by us in video streaming ventures.

These technologies are consistently getting stronger, partially because of the cooperation of the technology industry and the entertainment industry. New ideas constantly come up between Warner Brothers and ourselves of, okay, how could we make the black box of the DRM work better and everything.

So my sense is I don't think you have to fundamentally alter the nature of the intel architecture in order to do this. Are there certain things that could be done? Yes, but Intel, for instance, had a big blow-up when they had a specific processor chip identity and

they could have bound a piece of media to only that processor. Everybody said, oh, this is privacy invasion.

It could have been a very useful thing to literally make sure that a piece of media couldn't play on anything but the individual processor to which it was downloaded, and everybody went crazy on them on that. So I mean there are lots of cases where the industry is willing to do very innovative things and they run afoul of other problems.

Mr. BARRETT. I think the issue really is this, that if content is protected at the source, then, in fact, you can protect it through the rest of the system and its distribution. The DRM capability is there. You can upgrade that from a software standpoint. You don't have to do anything to the hardware to upgrade it.

The challenge is when there is streaming media out there which is unprotected. It is just a bunch of ones and zeroes. It could come from a movie, it could come from a song, it could come from my home video. How do I differentiate whether that is copyrighted media or not, and what would I do to allow you to receive lawfully-generated information or streaming media and not allow you to receive copyrighted media?

That is the major issue that the industry is facing today. All of the "in the clear" content on the Internet can be downloaded because it is not protected. And you ask what can you do to protect that? I don't think there is a simple technical solution to that.

You could say you can't download streaming media. That would serve no one's purpose because there are many lawful applications for downloading streaming media—audio or video that you create in your home and your own grandchildren send it to their grandparents.

There have been other proposals, not technical proposals but I think kind of pie-in-the-sky proposals, which are let's just compare the streaming media that is coming to you to a fingerprint of all copyrighted content in the world. So let's wiretap the information you are sending or receiving over the Internet and compare that to copyrighted content someplace on the fly.

If it is copyrighted content and you are getting it in an unprotected form, then slam the door. I think there are huge technical challenges to doing that. I don't know how to do it, and I think there are huge privacy challenges to, in fact, listen to someone's Internet communications without their permission if you don't like what they are receiving.

Senator EDWARDS. Can I get the comments of others? Mr. Parsons?

Mr. PARSONS. You have several things working. I don't think that there is—and I am not a technologist, but as I understand it, a need to re-architect computers. Much of what we are focused on now is, as Mr. Barrett was saying, how to flag, watermark, or otherwise encrypt digital material at the source and then, whether it be a computer or a consumer electronic device, detect that flag, that watermark, that encryption so that only the uses that were permitted at the source can thereafter be done.

To some extent, as I just said to Senator Hatch, virtually all of the music in the world now is available in digital space. You can't get that horse back in the barn. But going forward, we need as an

industry—and I think I want to trade your statement; yours was better than mine. We as an industry need to come up with a set of standards that say, okay, these are the rules going forward; this is how digital material needs to be flagged or watermarked or encrypted, and devices need to respect these stop signs, if you will. That may need some legislative push, but that doesn't require a re-engineering of underlying computer technology or architecture. That is step one.

I think step two is then to try and figure out how, with some of the stuff that is in the clear, it can either be fingerprinted—I mean, we are experimenting with some of this stuff now—or are there other technologies that can lay over the existing install base of computers that will help manage that problem as well.

But the principal focus right now, I think, from an industry perspective, at least from my perspective is what do we do going forward, not what do we do about what happened in the past.

Senator EDWARDS. Mr. Hughes?

Mr. HUGHES. I just wanted to add that I think that there are three questions when we are talking about digital rights management systems and whether they are mandated by government or simply agreed by private industry.

One is how widespread they are; that is, the number of digital devices they cover. If you look at Senator Hollings' and Stevens' draft legislation, it is far too epic in its scope.

The second one is how intrusive is the system. Mr. Barrett was completely right to say that many of the ideas that have been floated about are just too intrusive for our civil society.

Then the third one is how will it affect the current expectations and the fair use rights of consumers.

So the first question: digital rights management needs to be effective in combatting piracy, and then, third, we have to calculate the costs which I put under those three categories.

Senator EDWARDS. Yes?

Mr. KRAUS. The last thing I would add is I would refer you on your original question of how does the re-architecture affect the computer industry to Professor Felten's written testimony. He says very eloquently that solutions that Mr. Barrett does not favor—for example, the fingerprinting—have an effect on the general purpose nature of a computer and why that is a powerful tool for innovation.

He gives an analogy which I will repeat here, which is that by general purpose tool I mean that the computer is able to perform powerful operations on data without needing to understand everything about that data. That key element is what enables computers to be cheap, very flexible, and platforms for innovation.

Let me give you another example in the world, which is the phone system. The phone system is general-purpose; it can perform powerful operations on data. Every nuance of every conversation you have is faithfully replicated by the network. But Alexander Graham Bell did not anticipate answering machines or voice mail or call waiting or modems and data transfer.

The notion here is a general-purpose platform is very ripe for innovation because it is general-purpose and doesn't have to understand all the bits that go through it. Solutions which require com-

puters to "understand" all of the bits that go through them are naturally more constraining and more expensive because they lack that fundamental nature of not having to anticipate all future uses of that platform itself. Again, the phone network is a perfect example.

Senator EDWARDS. Well, I still have some trouble seeing it, but I appreciate it very much. I appreciate the testimony of all the witnesses and the work you are doing in this area, which as I said earlier I think is critically important.

Thank you, Mr. Chairman, for having this hearing.

Chairman LEAHY. Thank you.

Mr. Kraus, I couldn't help but think—it is somewhat related to what you were saying about the phones—I remember when government very fully regulated phones, innovations, what you could have. You couldn't get things like call forwarding, or you couldn't get all the other things because, no, we don't have to give you that.

Then when they started allowing industry to come up with it, all of a sudden you were finding all the things that the phone company, when it was controlled with government saying what the standards were and it is a monopolistic and everything else—all of a sudden, wow, when you could compete with it, sure, you can buy a phone with everything from the hold button, to the transfer, to the conferencing, and on and on, the answering machines and all the rest.

That is what I want to make sure of. I want to make sure that we are able—I don't want to stretch this analogy too far, but, of course, under the phone system criminal conduct did take place over the phone. People would call up and plan crimes, plan other things, the criminal. It didn't mean that we did away with the phone system. We tried to do away with the criminals. As a former prosecutor, I remember that very well when people would call up and plan an armed robbery or something like that. It is not the phone; it is the people doing it.

Here, of course, we are talking about the fact that you can run millions of times more data in that same amount of time. Mr. Barrett's comments—and I keep going back to two of them especially, Mr. Barrett. One is the fact that you had better get this at the source or by then the horse is out of the barn.

The other one is if you are going to try to track these things while they are going on, how can you possibly do that because you have millions, sometimes tens of millions of items going across the Internet? I am really struck by both of those analogies.

I have asked that the committee be kept apprised on a regular basis, certainly every couple of months, about the progress being made in the inter-industry working groups on finding some technical solutions to protecting these digital copyrighted works, including the solution of the broadcast hole and analog hole.

I went out to California a few weeks ago and met with content providers, software providers, and technical folks. Mr. Barrett, people were there from Intel, but also from the movie industry and others, trying to figure out how you bring about the solution. If I was at all sanguine that we could come up with an easy solution before the meeting, I certainly wasn't after.

I mention that because I want to note publicly my appreciation to a lot of companies who have differing views on what should be done—the entertainment industry, the innovation industry, the software and other industries. Even though they had differing views, they all were willing to come at their own expense, come to this meeting, spend time, and do a great deal of work preparing for it. I just wanted to say that I appreciate that to all the companies that did it.

That is why we want here for the committee—to the extent you are willing to share your progress with us, do so. The more sunshine we have on it, the better it is. We will be informed and less apt to be swayed by the statements of whoever thinks they have a momentary advantage saying an impasse has developed.

I think there may come a time when you have that consensus solution, and then we can talk about whether we need any kind of a legislative blessing or legislative mandate there. Frankly, I don't think we are there now. Frankly, I think it would be a disaster to try to have legislation go through now. I think that it is possible that we could reach that point.

I mention that only because if there are enough conflicting views on this, as a practical matter under the Senate rules no legislation will go through anyway. That may be a good idea, it may be a bad idea.

So I would ask both of you, will you commit your companies to try to keep us apprised of what is going on?

Mr. BARRETT. Well, I think both AOL Time Warner and Intel will immediately send you a copy of our joint statement of principles in this area, and then from the technical working group we can give you periodic progress reports on solutions to at least two of the problems we mentioned today; that is, the terrestrial HDTV and then the analog hole issue.

Chairman LEAHY. And, understand, nobody is asking for corporate secrets on this. We just want to be kept apprised.

Mr. Parsons.

Mr. PARSONS. Let me say, Senator, that I think your idea is a splendid one. Your notion of a little sunshine on the process—of course, we needed a little sunshine this morning to burn that fog off, but sunshine on the process here is good. That is a way in which you, this committee, and the Congress can be helpful by keeping some measure of gentle pressure on.

It is a subject worthy of your tracking and following, and we will work together with our colleagues at Intel, as we have been, and our other colleagues both within the entertainment industry and across the CE and IT sectors to come back to you, I think you have suggested on a bi-monthly basis, and just tell you how we are doing. And we look forward to your administering the tough love when we need it.

Mr. KRAUS. Mr. Chairman, can I add that I think consumers do need to be part of that process of developing whatever standards are developed that end up affecting consumers' lives? They need to have a voice.

Chairman LEAHY. I want to make it very clear, Mr. Kraus, that I want your comments, and Mr. Taplin's and Mr. Hughes'. That is why we have got this new point on our Web site. You can feel free

to contact me, you can feel free to post it in our Web site, and we are going to make sure that everybody knows, whether you agree or disagree with me. I can assure you that the people who disagree with me don't hesitate to let me know—one of the reasons I am glad to have an on/off switch. But we won't turn it off; we will listen to what you have.

Mr. Barrett, you and others on the panel have warned us about the cost to innovation that sometimes comes up with government intervention. Let's use a hypothesis: Say the major content companies persuaded us in Congress to mandate the use of certain anti-piracy technologies that they have presented to us, and then mandate that the Internet service providers and the online service providers and all digital device manufacturers support them.

What does that do to you if you are working on developing new anti-piracy technologies that might serve the interests of content providers who may want to distribute their content in different ways?

Mr. BARRETT. Well, I think anything that freezes technology in place and stops innovation is bad for all parties concerned—the content owners, the intermediate hardware suppliers, software suppliers, and the consumers.

My biggest concern would be to adopt a standard which would then stop development of new capability. If we had stopped the Internet and software at plain, flat-text messages going back and forth and saying that you are not allowed to do anything beyond that, then you wouldn't have had the CD–ROM, you wouldn't have multi-media, you wouldn't have the ability to translate audio, video, et cetera.

If we stopped just with one form of transmission of rich content, then you will stop new compression technologies, new capability to bring the consumer a better experience, and allow the content owners to provide that content to the end consumer with a better business model.

Chairman LEAHY. You have such things as blue laser technology and all these other things that may change the whole picture yet again.

Mr. BARRETT. Well, certainly blue laser technology, or blue ray technology, is just going to give you ten times the content density in a DVD and will allow you pack more and richer content, better end user experience. This is precisely what has driven this industry forward. This is precisely what will allow people like Mr. Parsons to deliver better content, richer experience, better business model to the end consumer. The same with Mr. Taplin.

Chairman LEAHY. Mr. Taplin, did you want to say something?

Mr. TAPLIN. Yes. My sense is that any attempt—and we could look at the digital TV problems that have happened when the government in Japan decided that there was going to be a digital TV standard and they made it an analog digital TV standard. The Japanese spent 10 years developing an analog high-definition television standard, only to find the year after they adopted and published it that it was totally useless because everyone had gone to digital.

We happen to be using a technology called Ampeg 4, and there are lots of various variations of that. But when I compare what is

happening in the Ampeg 4 world, delivered by Real and Microsoft and others, to the government Ampeg 2 standard, it is unbelievable.

Ampeg 2 has not changed from 3.8 megabits per second throughput in 12 years. Ampeg 4 gets better quality every six months at half the bit rate. It is like Moore's law on steroids. You know, we see the kind of innovation that comes with two competing companies, Real and Microsoft, constantly trying to better the quality at a lower bit rate, and that is what the marketplace delivers.

If there was a government standard, my business would come to a halt because everyone would stop. There wouldn't be any content available to us at all, and my guess is it would take three or four years for everybody to actually bring it into the marketplace.

Chairman LEAHY. You also have a point. The Internet is worldwide. I get correspondence every so often from a friend of mine in Sri Lanka who sends me something that might have been in an article there.

Mr. Parsons, I will see things on the CNN.com site that somebody picks up in whatever country it is and sends it back. How are you going to control that?

Mr. TAPLIN. Well, I just came back from Europe, the Ce Bit convention.

Chairman LEAHY, If they don't have the same standards, what do you do?

Mr. TAPLIN. Yes, and we saw some IP video, the same kinds of standards that we are using, delivered to cell phones that handle 9.5 kilobits a second through a 3G phone. It was the first time I said that really looks decent. So I mean there is constant innovation going on.

We have got some standards now. It is called IP HTML, you know, a basic format and platform on which we can all work and innovate. That is the format that AOL's whole Internet service runs on and it exists already.

Chairman LEAHY. Well, gentlemen, you have been good. We have gone beyond the time we told you. I am going to submit some other questions for the record, but I would also suggest this. All of your statements will be made part of the record, but go back through this record, and I will make you an offer. If you see something in there, like I wish I had said this, or I wish I had added that, do it. This is not a "gotcha" kind of thing. I want your input.

Excuse me. One of the problems with the dry air in here; I seem to have gotten a nosebleed. I am sorry. I apologize for that. We will stand in recess for a moment.

[Pause.]

Senator CANTWELL [presiding]. Senator Leahy had to step out for just a moment. I am sure he is going to return because he wanted to make, I think, some last closing comments.

I think, as I ran upstairs, that most of you made your wrap-up comments on this. Is that correct? Is there anything else anybody wants to add before we adjourn?

Mr. PARSONS. Well, Senator, having started late, I will cause us to go even later. I do think that several of you have indicated a sense of reluctance to jump into the pool now with both feet, that

you are looking for more work—I will put it that way—on the part of the private sector.

The reality of the circumstance we are in is he needs me in his business to make it work long term and I need him, and I think that recognition is becoming deeper within the industry and you can look forward to more cross-industry collaboration.

But we need you to keep our feet to the fire and to make sure that that cross-industry collaboration is productive, because what is at issue here, what is at stake here is something larger than just the well-being of my industry or the well-being of the software industry or the well-being of the consumer electronics industry, or even the well-being of individual consumers.

There are interests that are larger than that that underlie this whole set of issues we are talking about in terms of how a government of laws and a nation of laws that has built its position in the world on the basis of the fact that there are established rules and people can commit effort and can commit capital into an enterprise knowing what the rules are ahead of time and that those rules are going to be enforced along the way—that is the backbone of the American economy. That is why we are someplace different than so many of the other countries in the world because you can commit capital and effort and intellect on a set of rules that are fair and balanced and that will be there down the road so that you know where you are going at the time.

I think that is what underlies this whole discussion and I think that is what the interest of this committee and this Congress is, ensuring that structure, that framework of rules and laws and property rights remains intact in this digital world.

We have the burden of going forward in terms of trying to work it out, but you have the ultimate responsibility of making sure that we are moving forward. So I think that the structure that the Senator talked about and that this committee is imposing, saying keep us informed, we are not ready to jump in just now, but keep us posted, let us know of your progress, let us know if and when you do hit serious stumbling blocks, is a good one.

Mr. TAPLIN. I would like to just take that one step further, and this is something you mentioned earlier in your statement. Companies like myself and Time Warner Cable have committed incredible amounts of capital to building the infrastructure to deliver video on demand in legitimate, encrypted ways.

Some content companies who may not own last-mile networks or who may not have made those investments have chosen to perhaps withhold content from the broadband industry, in the mistaken idea that it would change the supply/demand curve.

Mr. Parsons' company is paying 10 percent more margin points for video on demand this year than they were last year because people withheld content to a point that they needed to get some content out on their video-on-demand system.

So I think it is important that we not confuse the piracy fear issue with other economic issues that some slightly misguided studios may have in terms of how to change the economics of the business, because we have all made huge capital commitments to an industry with the understanding that content would be forthcoming. And to have those content licenses withdrawn at the last

minute sometimes—and AOL is the real exception; they really have been open in trying to build the industry. But some of their brethren have not been so forthcoming.

Senator CANTWELL. Mr. Hughes, did you want to make a comment?

Mr. HUGHES. Yes, Senator Cantwell. You had earlier asked where are we going to get the best solutions, and I think that that is a very legitimate question. I know that this is not an extensive discussion of that draft legislation that we have seen from Senators Hollings and Stevens, but Senator Specter pointed out that the decision about antitrust law in that draft legislation is to be made by the Secretary of Commerce.

Well, I used to be in the Department of Commerce and to the best of my knowledge we didn't have any particular expertise in that area. At the same time, while that expertise is in the Antitrust Division of Justice and the FTC, this committee in its oversight function should rely on the expertise you pay for in the Patent and Trademark Office, in the Copyright Office, in the information policy experts at the Justice Department and the science agencies, to watch whether the solutions that are being proposed by the private sector are maintaining the balance in copyright law that this committee has for so long and with so much difficult sought to maintain.

Senator CANTWELL. Thank you.

Well, I know as painful as these hearings might sometimes be, they certainly are illuminating. And no doubt, Mr. Parsons, as you have said, the products and services that the public is yet to reap the benefits of are incredible. And how they will help our economy and change our culture probably is not really known to all of us yet.

Thank you for persevering. I think the chairman probably said it, or Senator Hatch, but we will be continuing to monitor this issue. Maybe a little more progress would be made, I think, for the music industry if we had a hearing every 7 to 12 months. Maybe at the next hearing we have, we will have a little more of a report and a little more progress, but we thank you for being here today.

The Senate Judiciary Committee is adjourned.

[Whereupon, at 12:33 p.m., the committee was adjourned.]

[Questions and answers and submissions for the record follow.]

QUESTIONS AND ANSWERS

Responses from Joe Kraus of DigitalConsumer.org to written questions following the Senate Judiciary Committee hearing regarding "Competition, Innovation and Public Policy in the Digital Rights Age: Is the Marketplace working to Protect Digital Creative Works" held on March 14, 2002

Questions from Senator Leahy

1. Consumer's interests and personal use rights are not taken into account by the inter-industry groups working on solutions to the "analog hole" and the "broadcast hole". There are no consumer organizations at the table. This is the heart of the problem. Those people who purchase the products of both the content industry and the technology industry are not represented.

Consumers have historically lacked representation in many of the decisions that affect how they enjoy the media they legally pay for. For example, consumers had no voice in deciding that DVDs could disable the 'menu' button during previews on DVDs. Consumers had no voice when copy protection technologies for CDs were developed that denied consumers their ability to copy CDs onto their portable music players. Consumers were not represented when it was decided that DAT tapes could only be copied once (even if the voice on the DAT tape was your own). In general, consumers have not been allowed to participate in decisions that affect their daily lives.

This problem is occurring again. The new digital television standards as proposed by the BPDG working group have had no input from consumers. I would strongly urge Congress not to act on any recommendations from these groups as a result.

The 20,000 members of DigitalConsumer.org believe that it is imperative that a proactive approach to consumer rights be taken by Congress. Congress should positively assert consumers' personal use rights through legislation in order to ensure that even when the consumer is not present at the bargaining table, their rights are respected and upheld. History has proven that without such an assertion, the consumer is usually on the losing end of the deal.

2. If the United States mandated that DRM technology be placed in every digital device and the international community did not go along I believe there would be several negative consequences.

First, I believe that American consumers would suffer. The primary reason is that the rest of the world would be more free to create innovative products that used a citizen's legally acquired media in creative ways that were not anticipated by the DRM standards bodies (much in the same way that no one could have predicted VCRs at the invention of

television). The DRM technologies would not allow these new uses (because they were not anticipated), and American consumers would be denied access to these new products.

Second, I believe that a government mandate for copy protection technology would be detrimental to American competitiveness. It is likely that foreign consumers would not want to buy technologies which incorporated restrictive technologies, thereby reducing the market for American products. If American companies were to produce two lines of products this would undoubtedly increase expense.

Third, as the question suggests, one likely outcome is that content owners will come back to Congress to complain of the "international hole". In 1998 media companies promised that the passage of the DMCA would lead to a flood of digital content. A quid pro quo was made: give more protection to the content industry and American consumers will benefit. American consumers are still waiting for the promised torrent of legally available content. Today, media companies are at Congress' door asking for more protections. If 1998 provides any example, it is that after winning this latest round of legislation, the content industry will be back yet again to complain that the final hurdle to digital content is the closing of the "international hole". All the while, consumers will continue to wait.

3. The intersection of privacy and digital rights management is a large issue. Consumers have been unpleasantly surprised as several companies have been implicated in monitoring consumers' media behavior without their permission. For example, Microsoft DRM solutions monitor the songs and videos that a user watches (http://www.msnbc.com/local/scj/a83472.asp).

In response to the second half of the question, our firm conviction and the conviction of over 20,000 citizens of digitalconsumer.org is that the privacy of citizens with respect to their digital content must be protected along with other rights to personal use. Without a positive assertion of consumer rights through legislation, consumers are at the mercy of technical solutions that (if history serves as any lesson) will be far more restrictive then they expect. Today's examples – DVDs where previews cannot be skipped or CDs that can't be copied to a portable MP3 player – indicate that media companies are not interested in protecting a consumer's fair use rights. Until a consumer's rights are positively asserted any DRM solution is likely to seriously disappoint and disadvantage the citizen.

4. The government should not have a mandated "back stop". Market forces are providing enough incentive to bring technology companies and Hollywood together to produce solutions. These industries need one another and interference in the process merely disadvantages one side unnaturally (whomever the government tends to favor).

Internet technology moves incredibly quickly. A government-mandated "back stop" would force Hollywood and tech companies to come to a hurried compromise that would fail to take into account all possible future uses (just as the DMCA failed to take into

account important uses such as allowing blind people to extract the text of electronic books). Once the compromise was frozen in legislation, technology changes would quickly make it obsolete.

If the government is to apply any 'back stop', the backstop should not be to protect either the technology industry or Hollywood, but rather the citizen.

5. What is delaying broadband? First, I would ask why is the government in the business of promoting broadband? Why is the government deciding that deployment is going too slowly? This is a market issue. If consumers aren't buying broadband, why is it the governments business to encourage them?

Second, the logic of the content industry is flawed. They contend that if technical standards for copy protection are mandated then they will unleash a tidal wave of content online. There are two problems with this argument. First, noted computer security experts believe that no system can prevent piracy. Professional pirates will find a way around any copy protection system. We'll end up where we are today, in an insecure world with media companies clamoring for more protection; but this time, consumers will have even less flexibility to use the media they buy. Please refer to Professor Ed Felten's written testimony to the Judiciary Committee Hearing of March 14 for more detail. Second, Hollywood has made this promise before. In 1998 Hollywood came to Congress with a promise: pass the DMCA and content will flow onto the net. Instead of content flowing, the media companies have used the law to stifle competitors by bringing lawsuits against innovative companies while consumers have been left with no viable legal alternatives to the digital downloading of content. We believe that the Hollings approach, if approved, will have a similar outcome.

6. First, we commend this question's title: "fight piracy with legitimate offerings". We believe one reason for the popularity of illegal copying of music and movies is the dearth of commercially viable legal alternatives. MusicNet and PressPlay have serious flaws: they lack deep catalogs and they don't provide consumers with the flexibility they expect from their music (i.e. in many cases they can't transfer music to portable players, or in the case of PressPlay their music "expires" as soon as they stop paying the subscription fee). Consumers are voting with their feet and not patronizing these services. I believe this is not primarily because the competition is free, but because the competition delivers what consumers expect: they can find the music they're looking for and once they find it, they can do with it what they expect (i.e. take it to the gym, listen to it in their car, etc). As this week's Economist magazine (March 21, 2002) accurately observes, "the meaner the industry is over what people can do with the [content] they pay to download, the more the studios' own services will be a second-rate alternative to piracy"

It is instructive to contrast the approach of the media companies to the approach of the software companies in the digital world. As we've heard many times in this forum, media companies claim to lose $3.5B per year to piracy. Software companies claim to lose $12B

per year. Therefore, one would logically expect the software companies to have the same reservations about the digital medium that the media companies have. One would expect that the software industry would be clamoring for government mandates like the media industry. One would expect that the software industry would be shying away from digital distribution like the media industry.

But the software industry does not behave like the content industry even though they suffer nearly 4 times the piracy. Unlike their media company counterparts, software companies have generally chosen to embrace the digital medium. A huge number of software titles are available for digital download. Once downloaded, those software programs behave as a consumer expects. Simply put, they behave like software bought at the store.

We believe it's important to ask why the software companies who lose so much more to piracy embrace the digital medium while the media companies claim that their business will be ruined if they embrace digital delivery in its current "insecure" state?

Along those same lines, it's important to ask why the Business Software Alliance (an organization dedicated to detecting and stopping piracy) does not support government mandated technologies for copy protection. I believe the reason is that the software industry has been down this path before and has found that it does not work. In the early 1980s, many major software companies decided to implement strong copy protection schemes on their products. They discovered two things. First, their schemes did not stop piracy. Dedicated commercial pirates circumvented the copy protection. Second, their copy protection alienated and infuriated *paying* customers because the copy protection altered the expected behavior of the software. For example, consumers could not back up their software, and if a consumer upgraded his computer by buying a new one, they could not re-install the software on that machine. Software companies discovered that *treating all customers as potential criminals* was bad for business; it didn't stop theft and it alienated the people who actually paid for their products.

Instead of forcing technical solutions that inconvenienced paying customers, the Business Software Alliance shifted to a strategy of actually *pursuing pirates*. Today the BSA investigates piracy allegations, conducts raids, and assesses large fines on violators. Through the enforcement of existing law, the BSA has been extremely effective at diminishing piracy in the United States.

In short, computer security experts believe and software history teaches that technical solutions will not solve the problem of piracy. The only way to reduce piracy is to *engage the market* by offering viable legal alternatives to consumers and to *pursue the pirates,* not the average consumer.

7. Unfortunately, the answer to the question is yes. DRM schemes coupled with anti-circumvention provisions have the potential to extend copyright control beyond the actual protection given under the Copyright Act.

DRM clearly extends copyright holders' control of content. First and foremost, anti-circumvention laws restrict fair use by making it illegal for consumers to extract content for purposes that would otherwise be legal. Second, in order to read DRM-protected content after the copyright has expired, circumvention tools are required; but the CBDTPA and DMCA make it a crime to traffic in the tools that could be used to perform the circumvention.

8. I believe that Justin Hughes' testimony clearly addressed this issue head on. He says, "Congress should be cautious in how much it is willing to defer to the policy decisions – and legislative drafting -- of private parties. A member of the House is reported to have said that the House Subcommittee on Courts and Intellectual Property 'has a history of preferring that commercial disputes be resolved between the parties rather than through the legislative process, which may favor one interest group over another.'"

Mr. Hughes continues, "That's all good and well, but this risks being private resolution blessed by the legislative or regulatory process without any way to be sure that the private discussions took account of all the relevant social interests. How digital copyrighted works are distributed and used is a matter of enormous interest to consumers too. Users of copyrighted works have distinct privileges in the balanced scheme of the copyright law – fair use and the first sale doctrine chief among them. An 'agreement . . . brokered through private, voluntary, industry-led negotiations, and then blessed by Congress' may fail to address those concerns.[2]"

I would concur with the Copyright Office DMCA Section 104 Report that the use of access control technology and non-negotiable contracts "increases the likelihood that right holders, and not the copyright politics established by Congress, will determine the landscape of consumer privileges in the futures". In the opinion of DigitalConsumer.org and our 20,000 members, this is exactly the reason why Congress needs to pass legislation which positively asserts a consumer's rights to personal use. Without this consumer mandate, technologies controlled by media companies are free to ride rough-shod over consumer's rights (because they are not well defined) and consumers are handcuffed because they have no choice but to accept these solutions (since they cannot use technology to assert their rights). In our opinion, the future as outlined by the copyright office is exactly why leaving fair use in its current ambiguous and debated state is highly detrimental to consumers. If technologies choose not to respect rights which consumers expect but media companies question, consumers have no recourse given access control technologies and non-negotiable contracts. In such a market, legislation is needed to assert consumer rights.

9. It appears clear that the courts intend space shifting to be covered under the rubric of fair use. In Recording v. Diamond, the 9th Circuit Court of Appeals stated that space-

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[2] Testimony of Peter Chernin, President and CEO, News Corp., before the Senate Commerce, Science, and Transportation Committee, February 28, 2002, at 6.

shifting is "paradigmatic non-commercial use entirely consistent with the purposes of the [Audio Home Recording Act]."

10. The question requests that the respondent put aside the issue of whether or not the government should be in the business of mandating technical standards and instead focus on whether there is a problem with having such a standard be 'open'. In my opinion an open standard is better than a closed one but even an open standard suffers from a few problems.

First, if the government decides to mandate an open standard, there is no guarantee it will truly remain open. Microsoft has a history of "embrace and extend" policies where an open standard is adopted and then modified or extended in order to introduce proprietary features which licensing vendors are encouraged to exploit. The new "expanded standard" meets the basic criteria of the open standard, but if this expanded standard is used to its fullest, it will have features that the original open standard cannot understand; therefore, the open standard becomes less and less effective. Examples of Microsoft's behavior in this regard include the Java programming language, the HTML page layout standard, and the Kerberos security technology.

Second, making a standard open does not necessarily solve the problem for open source operating systems like Linux. A standard can be open in the sense that its specifications are fully published, but the standard may still rely on patented technology. If the patented technology is required to implement the standard, then the owner of the patent can exert total control over the deployment of the standard by controlling the licensing of the patent. For example, if the open standard is based on a technology patent owned by the music industry (or by a company eventually purchased by the music industry), then the music industry can use its control over the patent to shut down competitors.

11. DigitalConsumer.org certainly agrees with the question's premise: that the CBDTA would significantly harm a consumer's fair use rights.

The CBDTPA claims to protect the "fair use doctrine". However, media companies have historically either denied that personal use rights exist or defined those rights extremely narrowly. As a result, without a clear, positive assertion of personal use through legislation (a Consumer Technology Bill of Rights), consumers are left to the whims of media company lawyers when questions arise. Using history as a guide, this is a losing proposition for citizens and their ability to use legally acquired media in legitimate and expected noncommercial ways.

Another example is that although section 3(e)(2) discusses personal use copies, it narrowly defines personal use as just one copy "at the time [the program] is lawfully performed". This exemption for personal use is substantially narrower than the legal rights that consumers have had in the past and have come to expect.

Before even more power is given to media companies, consumers need their rights defined and safeguarded.

While DigitalConsumer.org believes the marketplace is the best place for technologies to be developed, even a marketplace-based solution will not necessarily protect consumers. Until a consumer's rights are asserted, marketplace forces will not be required to recognize consumer rights. The same dynamics described above (with media companies denying the existence of fair use rights or defining them extremely narrowly) will create technologies in the marketplace that restrict a consumer's rights. Until Congress acts to proactively assert a consumer's rights, those rights will continue to be eroded whether via government mandate or marketplace solution.

12. I reject the notion that the marketplace has failed and that therefore the government needs to step in and regulate.

First, the burden must fall upon law enforcement, not on any particular industry for policing violations of copyright. This solution has worked well to reduce software piracy in the digital age. To attack piracy, the Business Software Alliance does not rely on strict technical measures which may alienate paying customers but rather relies on strong enforcement of existing laws.

Second, the content industry has not taken the first step of embracing the digital medium and offering consumer viable, legal alternatives. MusicNet and PressPlay have serious flaws: they lack deep catalogs and they don't provide consumers with the flexibility they expect from their music (i.e. in many cases they can't transfer music to portable players, or in the case of PressPlay their music "expires" as soon as they stop paying the subscription fee). Consumers are voting with their feet and not patronizing these services. I believe this is not primarily because the competition is free, but because the competition delivers what consumers expect: they can find the music they're looking for and once they find it, they can do with it what they expect (i.e. take it to the gym, listen to it in their car, etc). As this week's Economist magazine (March 21, 2002) accurately observes, "the meaner the industry is over what people can do with the [content] they pay to download, the more the studios' own services will be a second-rate alternative to piracy"

Additionally, the private sector has already proven that it can successfully create standards on its own. The DVD is a perfect example of the marketplace solving the standards problem without government intervention. (DVDs also illustrate the point that government intervention is required on the consumer side – DVDs have many features that violate the personal use rights of consumers.)

13. A government mandated system for protecting digital content would definitely have a negative impact on American innovation. Innovation is by definition the act of creating something new and unanticipated. However, a government standard that only permits

specific technologies will necessarily prohibit all other technologies. Therefore, future innovation will be practically impossible outside the narrow confines of the standard.

In addition, government-mandated copy protection hobbles American companies in the international market. Crippled American consumer electronics devices will be unable to compete with full-featured foreign alternatives.

14. I believe that it is likely that copyright owners and device manufacturers will be able to agree to a solution without the intervention of Congress. Unfortunately, such a solution will most likely involve little input from consumers. Rather than setting a time limit and mandating a specific technology, Congress should pass legislation to assert a citizen's fair use rights and allow the private sector to work out the implementation details on its own.

As mentioned earlier, *we believe that this committee should think of this problem in terms of rights, not in terms of mandates*. Define the rights of the respective parties (copyright holders and citizens) and let the market develop technologies which adjudicate between the two. Copyright holders have strong rights, while consumer's rights are weak and ill defined. The first step to solving the problem is not a government technology mandate, but a strong assertion of consumer's rights.

15. I believe that it is unfeasible to expect the FCC to promulgate a fair and effective standard for securing digital content. First, many computer science experts believe that a secure system is not possible. Professor Ed Felten of Princeton University in his Senate Judiciary Committee testimony of March 14, 2000 "a standard for copy protection is as premature as a standard for teleportation". Second, putting the government in charge moves the decision from a market-based one to a political one. The development of technology should be driven by the market, not a government agency. Third, given the slow speed of a government-driven process, the standard chosen will inevitably become outmoded and the process for revising it and updating it will be slower than a market-based one.

16. There are certainly unconquerable problems with regard to protecting digital content at this time and for the foreseeable future. In his testimony to the Senate Judiciary Committee hearing on March 14, 2002, Professor Ed Felten says, "All indications are that it [copy protection technology] will not work. To date there is little if any scientific evidence to indicate that a technology of the sort envisioned by the content industry could actually prevent piracy. The consensus among independent experts, including me, is that strong copy protection (protection that a moderately skilled person expending moderate effort cannot break) simply is not possible on general-purpose computers such as PCs. A strong copy protection scheme for PCs is as implausible to many experts as a perpetual motion machine."

Given the opinion of experts in the field, I see no reason to believe that the FCC is any better suited to establish a copy protection standard which would achieve the goal of preventing piracy. Along those same lines I believe that any governmental process (as opposed to a market-based one) cannot react quickly enough to changes in technology and the consumer marketplace.

Questions from Senator Thurmond

1. Consumers expect to enjoy the same personal use rights in the digital world that they enjoy in the analog world. They expect to be able to make personal use copies of music to take to the gym or in their car. They expect to be able to take a copy of a movie they buy to a friend's house. They expect to be able to make mixed music compilations. They expect to be able to lend content to friends. They expect to be able to time shift, to space shift, to alter formats, to enjoy media on the platform of their choice and to make backup copies. In general consumers expect to have flexible non-commercial use of the media they purchase. Consumers believe they have a set of personal use rights and they expect Congress to safeguard those rights.

2. I believe the question of 'how long will it take' is not the right question. As Princeton Computer Science Professor Ed Felten, a computer security expert, noted in his testimony to the Senate Judiciary Committee on March 14 the right question is not 'how long will it take' but 'is it possible?'. Professor Felten says bluntly that 'a standard [government mandated or otherwise] for copy protection is a premature as a standard for teleportation'.

Further quotation from his testimony illustrates this point. "Every copy protection scheme for general purpose computers that has undergone serious public scrutiny has been found to be ineffective. Consider what will happen if a government mandated protection measure turns out not to work. Such a measure would do many things: it would inconvenience honest consumers; it would raise the price of media players; it would lengthen product development cycles; it would impede the development of new and better standards. Everyone would suffer, except the pirates. The industry that devised the measure would look technically inept, and the government that mandated its use would look worse."

The solutions that the content industry has advanced to date have been more effective at preventing consumers from copying their legally bought music to their MP3 players than at diminishing major commercial piracy operations. As we all know, copy protection isn't breakable by the average citizen, but it is very breakable by software experts.

A government mandated technology standard will not be any more effective at preventing piracy. Instead, the consumer will lose as another technology that deprives them of control and flexibility is forced upon them.

Rather than focus on technology mandates, the solution should be to focus on rights. Copyright holders have a set of well-defined rights. Consumer's rights are far more cloudy. The first step should be to affirm consumers' rights through legislation. Then, the marketplace can develop technology solutions which adjudicate between these rights. From that point, the emphasis needs to be on enforcement. Focus on stopping pirates, not on assuming that the average citizen is a criminal.

Along those same lines, it's important to ask why the Business Software Alliance (an organization dedicated to detecting and stopping piracy) does not support government mandated technologies for copy protection. I believe the reason is that the software industry has been down this path before and has found that it does not work. In the early 1980s, many major software companies decided to implement strong copy protection schemes on their products. They discovered two things. First, their schemes did not stop piracy. Dedicated commercial pirates circumvented the copy protection. Second, their copy protection alienated and infuriated *paying* customers because the copy protection altered the expected behavior of the software. For example, consumers could not back up their software, and if a consumer upgraded his computer by buying a new one, they could not re-install the software on that machine. Software companies discovered that *treating all customers as potential criminals* was bad for business; it didn't stop theft and it alienated the people who actually paid for their products.

Instead of forcing technical solutions that inconvenienced paying customers, the Business Software Alliance shifted to a strategy of actually *pursuing pirates*. Today the BSA investigates piracy allegations, conducts raids, and assesses large fines on violators. Through the enforcement of existing law, the BSA has been extremely effective at diminishing piracy in the United States.

In short, computer security experts believe and software history teaches that technical solutions will not solve the problem of piracy. The only way to reduce piracy is to *engage the market* by offering viable legal alternatives to consumers and to *pursue the pirates,* not the average consumer.

3. I do not believe that the government should mandate the use of specific digital rights management technologies for several reasons. First, many computer science experts believe that a secure system is not possible. Professor Ed Felten of Princeton University stated in his Senate Judiciary Committee testimony of March 14, 2002 that "a standard for copy protection is as premature as a standard for teleportation". Second, putting the government in charge moves the decision from a market-based one to a political one. The development of technology should be driven by the market, not a government agency. Third, given the slow speed of a government-driven process, the standard chosen will inevitably become outmoded and the process for revising it and updating it will be slower than a market-based approach. Fourth, legislation has not been needed to guarantee other critical types of interoperability; CDs play in all CD players, DVDs play in all DVD players, Internet Protocols allow all computers to talk to one another. None of these examples required government legislation. Finally, stability will not be provided by the government; it will be provided by a system that balances the rights of content creators against the rights of citizens. That is why we believe that this committee should think of this problem in terms of rights, not in terms of mandates. Define the rights of the respective parties (copyright holders and citizens) and let the market develop technologies which adjudicate between the two. Copyright holders have strong rights

while consumers' rights are weak and ill defined. The first step to solving the problem is not a government mandate, but a strong assertion of consumer's rights.

4. In my opinion, the primary hindrance to the development of cross industry standards for protection of digital content is the reluctance of the content industry to acknowledge that citizens posses broad personal use rights to the media they legally acquire. Technology companies recognize that consumers demand personal media electronics which respect and facilitate those rights, and they recognize that consumer will not buy products which do not take their rights into account. This is at the heart of the impasse.

5. The question is a good one because there is often confusion about the difference between open standards and interoperability. Generally speaking, an open standard is one that everyone can see; it makes its interfaces and desired behavior clear so that anyone is able to implement it. Open standards tend to drive competition and create a diverse marketplace by providing transparency: as long a developer implements the desired behavior of the standard, their device will work as expected.

However, it is important to note that a government mandate is not necessary to ensure interoperability. The market demands interoperability and has no need for the government to insist on it. There is no government mandate for CD player interoperability, yet all CDs play in all CD players. Interoperability will occur as a natural effect of the market. (Although no standard has yet emerged for secure digital music, this is due at least in part to the fact that the existing technologies are too burdensome for the consumer. Once a suitably user-friendly technology has emerged, consumers are likely to embrace it.)

Interoperability is always a positive goal. It can be achieved by standards that are open or closed, market-driven or government-mandated. In general, open market-driven standards tend to work best. Without openness, a group of companies can agree on private standards that are interoperable, and then use the privacy of the standard to shut out competitors and innovation.

Questions from Senator Biden

1. Instead of considering the question of 'how many films [Jonathan Taplin's] customers would download if "free" downloads were unavailable', I believe the better question is 'how many films would your customers download if you had a comprehensive catalog of films at competitive prices and if those films behaved like consumer's expected once downloaded' (e.g. a viable, legal alternative). Rather than focus exclusively on finding technical solutions to stopping piracy (which many security experts believe to be impossible), the focus should be on embracing the digital download market and creating rich and viable legal alternatives to illegal services. This is the model the software industry has chosen, an industry that loses nearly $12B a year to piracy. They have chosen to embrace the market and pursue pirates instead of resisting the market and requiring that all customers submit to technological and behavioral restrictions before engaging.

2. Congress should not intervene on the side of the technology companies or Hollywood. Instead, if Congress is to intervene at all, it should be to protect a consumer's rights through legislation.

I support Mr. Barrett's statement that 'the marketplace has largely worked'. I would argue that one of the primary reasons (though not the only one) that films are illegally downloaded is the fact that there are no viable legal alternatives. The content industry complains that the market is not working. But I would suggest that if the market is not working, it is because the content industry has chosen to sit on the sidelines and complain that it cannot do business on the net in its current form. Once again, I ask this committee to look at the software business – an example of an industry which has embraced the digital download medium even though it suffers from far greater piracy than the media industry. If there is market failure, it is not the failure of the technology industry to engage with the content industry; instead it is the failure of the content industry to provide consumers with products that they are willing to pay for.

Mr. Barrett's statement is validated by Jack Valenti, head of the MPAA, who has said that 2001 was the movie industry's best year ever. Clearly the 350,000 downloaded movies are not causing the total collapse of his industry, any more than several million speeding drivers cause the total collapse of our nation's highway system. There will always be people who break laws, and there will always be law enforcement.

3. It is definitely not fair for a DVD to preclude a customer from skipping sections of the disc. And if historical products are any guide, we will definitely see more of this trend: DVDs prevent fast-forwarding, CDs limit your ability to make tracks for your computer or walkman, DTV standards limit your ability to time-shift shows, etc.

Copyright's original function was not to grant rights holders absolute control over every instance of a work. (For example, a consumer does not have to own the latest Britney Spear's CD in order to sing her songs in the shower.) Rather, copyright's function was to give rights holders the legal tools to control the distribution of their work. We should let that principle guide us in determining the bounds of fair use in the digital age. We should strive for legal and technological solutions that give rights holders the ability to distribute and monetize their works, but we should not criminalize the act of making personal, not-for-profit copies of works that a consumer has legally acquired.

On the question of whether or not a standard becomes outmoded, I believe that a government-mandated standard has a far greater chance of becoming outmoded than a market-driven one. In addition, I believe that it is unfeasible to expect the FCC to promulgate a fair and effective standard for securing digital content. First, many computer science experts believe that a secure system is not possible. Professor Ed Felten of Princeton University in his Senate Judiciary Committee testimony of March 14, 2000 "a standard for copy protection is as premature as a standard for teleportation". Second, putting the government in charge moves the decision from a market-based one to a political one. The development of technology should be driven by the market, not a government agency. Third, given the slow speed of a government-driven process, the standard chosen will inevitably become outmoded and the process for revising it and updating it will be slower than a market-based one.

Questions from Senator Hatch

1. I believe that the availability of media-rich Internet content can drive increased broadband deployment if (and only if) that content respects consumers' personal use rights and meets their expectations. For example, music is available for legal download on services like PressPlay and MusicNet. Yet, I do not believe these services are driving broadband deployment. Why? Because these services do not have a deep catalog of music and the music a consumer downloads behaves differently than they expect. For example, many MusicNet files cannot be copied onto portable music players, and music from PressPlay expires when you let your subscription lapse. These are examples of services that make media-rich content available on the Internet without promoting broadband deployment.

2. I have no additional comment.

3. It is instructive to contrast the approach of the media companies to the approach of the software companies in the digital world. As we've heard many times in this forum, media companies claim to lose $3.5B per year to piracy. Software companies claim to lose $12B per year. Therefore, one would logically expect the software companies to have the same reservations about the digital medium that the media companies have. One would expect that the software industry would be clamoring for government mandates like the media industry. One would expect that the software industry would be shying away from digital distribution just the media industry does.

But the software industry does not behave like the media industry even though they suffer nearly 4 times the piracy. Unlike their content industry counterparts, software companies have chosen to embrace the digital medium. A huge number of software titles are available for digital download. Once downloaded, those software programs behave as a consumer expects. Simply put, they behave like software bought at the store.

It is important to ask why the software companies who lose so much more to piracy embrace the digital medium while the media companies claim that their business will be ruined if they embrace digital delivery in its current "insecure" state?

Along those same lines, it's important to ask why the Business Software Alliance (an organization dedicated to detecting and stopping piracy) does not support government mandated technologies for copy protection. I believe the reason is that the software industry has been down this path before and has found that it does not work. In the early 1980s, many major software companies decided to implement strong copy protection schemes on their products. They discovered two things. First, their schemes did not stop piracy. Dedicated commercial pirates circumvented the copy protection. Second, their copy protection alienated and infuriated *paying* customers because the copy protection altered the expected behavior of the software. For example, consumers could not back up

their software, and if a consumer upgraded his computer by buying a new one, they could not re-install the software on that machine. Software companies discovered that *treating all customers as potential criminals* was bad for business; it didn't stop theft and it alienated the people who actually paid for their products.

Instead of forcing technical solutions that inconvenienced paying customers, the Business Software Alliance shifted to a strategy of actually *pursuing pirates*. Today the BSA investigates piracy allegations, conducts raids, and assesses large fines on violators. Through the enforcement of existing law, the BSA has been extremely effective at diminishing piracy in the United States.

4. Congress should not step in with legislation to protect copyrighted content because such legislation is simply unnecessary. The industry has agreed on standards many times before: the CD format, DVD copy protection, etc. There is no reason that the market cannot work here.

Second, instead of thinking about this issue in terms of defining mandates, the 20,000 members of digitalconsumer.org urge you to think about this issue in terms of defining rights. Copyright holders have numerous, well-deserved rights that make them the exclusive beneficiaries of the distribution of copyrighted works. Consumers' rights are far more cloudy. Consumers believe that 'fair use' entitles them to flexible use of media in non-commercial ways. However, the content industry has historically either denied that fair-use rights exist or defined them far more narrowly than consumers expect. Therefore, if the government feels the need to intervene in this debate at all, the first action should not be an intervention in favor of the content industry or the technology industry, but rather an intervention in favor of the citizen. Consumers need a positive assertion of their personal use rights that can balance the rights that copy right holders have. I believe this will help a marketplace solution emerge more quickly.

5. I believe that there is an inherent tension between the general purpose nature and power of the PC and the "trusted entertainment platform" of things like the VCR.

First, it is important to note that a VCR or digital satellite receiver is not a general purpose computer. It is not as powerful, flexible, and extensible. In short, it is not a platform of innovation. It is a device limited in its purpose. It has only one goal. It is because it has only one goal that it can be made (somewhat) secure. This security comes at the price of flexibility.

Contrast that with the PC. Its strength comes from its flexibility and programmability. Citizens desire these features – they do not want their PC to become an expensive VCR as some columnists have noted.

Princeton Univerity Professor Ed Felten in his testimony to the Senate Judiciary Committee on March 14 describes how the "general purpose" nature of the PC is the

foundation of the innovation that has blossomed around it. He says, "While copy protection might be workable in a world with 'dumb' single-purpose media players like VCRs, it is fundamentally incompatible with 'smart' general-purpose technologies such as PCs and the Internet. When I say that these technologies are 'general-purpose,' what I mean is that they are able to perform powerful operations on data, without needing to understand everything about that data. For example, the telephone system is a general-purpose technology, because it can carry a conversation between two faraway people, and it can do this without needing to understand what those people are talking about. The telephone is indispensable precisely because you can use it to talk about any topic whatsoever, and because it transmits faithfully every pause, inflection, and nuance in the speakers' voices; and it is feasible to build a flexible, inexpensive, and easy-to-use telephone system only because that system does not need to understand what it is transmitting.

"The same is true of the Internet, and of the internals of a PC. These technologies are designed to transmit and process information in any form, thereby providing tremendous cultural and economic value to their users. And the speed, power, and low cost of the Internet and PCs are possible precisely because they are designed to operate without having to understand the content of the data they are handling.

"The general-purpose nature of the PC and the Internet is what has made them such astonishing engines of creativity, because it allows them to be used for purposes that their creators did not envision. Alexander Graham Bell did not foresee the invention of answering machines or voice mail – but he did not have to, because his general-purpose invention could accommodate them. He did not foresee that vending machines would phone a supplier when they ran out of candy bars. The designers of the Internet did not foresee the World Wide Web; but because the Internet infrastructure was general-purpose, the Web could rely on it immediately and without difficulty. General-purpose technologies provide platforms for innovation that allow anyone, even the proverbial kid in a garage, the opportunity to develop the next 'killer app.'

"Copy protection operates on the opposite theory, by requiring the technology to categorize and understand the data that it is handling. Because copy protection and general-purpose computing and networking are fundamentally incompatible, attempts to add copy protection to general-purpose computers and networks are doomed to failure."

Given these incompatibilities, we need to make a fundamental choice: do we want perfect copy protection and a crippled PC industry, or do we want very effective copy protection and a healthy PC industry? We already have the legal tools to allow media companies to profit without absolute copy protection, so why should we attempt to add incremental improvements to copy protection at the expense of one of our country's most vibrant industries?

6. The most important lesson is that companies need to embrace the medium. I believe that one of the primary (though not the only) reason that consumers continue to use illegal file trading networks to download music is the dearth of viable, legal alternatives. In particular the alternatives offered by the music industry to date fail on two fronts: they

don't meet consumer's expectations once a piece of music is downloaded and they don't offer much for a consumer to find.

First, the consumer expects their media to respect their personal use rights. Many songs on MusicNet are not portable: they cannot be put on an MP3 player or burned on a CD. Ever since the introduction of the Sony Walkman consumers have expected portability in their music. My belief is that if the movie companies chain their content to the computer and do not allow the movie to be broadcast freely inside the house or burned onto a DVD, their offers will fail as well.

Second, it is clear that another lesson from the music experience is that consumers will flock to where they can find what they are looking for. Consumers will go where there is a deep catalog of content.

The software business has done a much better job of providing a deep catalog and meeting consumer expectations in the online world. Generally speaking, a large number of software packages are available for legal download, and once downloaded, these software programs behave identically to those bought in a store. In my opinion, the software business and its embrace of the digital medium is an existence proof that today's digital market can work and that media companies will not go out of business (as many claim) if the government does not radically alter the digital landscape. The software business continues to thrive – new products are created, profits are made, shareholders are benefiting – even though it uses the same medium that the media companies claim to be the death of their industry.

7. In general DigitalConsumer is opposed to any standard (open or closed, government-mandated or market-based) which does not preserve the personal use rights of consumers. Our belief is that without legislation which positively asserts a consumer's rights, any standard will not adequately protect consumers. This stems from the fact that historically media companies have either rejected the notion that consumers have fair use rights or defined them so narrowly as to be completely divergent from a consumer's expectation.

With that in mind, our belief is that an open standard is better than a closed one and that a market-developed standard is better than one which is government-mandated. It is important to note, however, that a government mandated standard is not necessary to ensure interoperability. The market demands interoperability and has no need for the government to insist on it. There is no government mandate for CD player interoperability, yet all CDs play in all CD players. Interoperability will occur as a natural effect of the market. (Although no standard has yet emerged for secure digital music, this is due at least in part to the fact that the existing technologies are too burdensome for the consumer. Once a suitably user-friendly technology has emerged, consumers are likely to embrace it.)

Interoperability is always a positive goal. It can be achieved by standards that are open or closed, market-driven or government-mandated. In general, open market-driven standards

tend to work best. Without openness, a group of companies can agree on private standards that are interoperable, and then use the privacy of the standard to shut out competitors and innovation.

8. I have no additional comment.

9. The cited technology demonstrates two points. First, it shows that the technology for preventing illegal copying is always improving, making a government-mandated solution less necessary. Second, it shows that it is difficult to predict the forms that copy-protection technology will take – any government-mandated solution is likely to be obsolete within a few years.

10. I want to thank Senator Hatch for raising this issue. The 20,000 members of digitalconsumer.org feel very strongly that their fair use rights need to be safeguarded and that a consumer voice needs to be present at the table when decisions that affect the flexible use of legally acquired media are being made.

Our membership believes that the only way to make sure their rights our respected is to encode them and assert them through legislation – through a consumer technology bill of rights. As you are well aware from your experience at the hearings of July, 2000 fair-use is cherished by consumers but hotly contested by media companies. Media companies either deny that fair use exists or define it so narrowly as to be wildly out of line with what consumers expect.

As a result, I believe that until we have a clear assertion of a consumer's rights through legislation, no private discussion – even with consumer's voices represented – will result in a positive outcome and preservation of consumer's rights.

I was heartened by the verbal testimony of Mr. Parsons to the Judiciary Committee on March 14. However, he mentions that it is not in the interest of media companies to deny consumers of their fair use rights. While I agree, there are already products in the market today that deny consumers of their personal use rights: copy-protected CDs that prevent copying to a digital walkman, digital audio tape recorders that prevent consumers from making copies of their own recordings, DVDs that prevent a user from fast-forwarding through advertisements, etc.

Therefore, I believe the most necessary step is not to give another set of legal tools to the copyright holders (they have sufficient tools to stop piracy already), but instead to positively assert a consumer's rights and to give consumers a tool to defend their interests as these decisions over digital media are made.

11. I have no additional comment.

12. I have no additional comment.

13. I don't know if we should comment. But generally I believe that in order to spur competition that the labels should have to have open license terms and that anyone can license the content. It's good for consumers because it's good for competition. Again, I don't know if we should comment on it.

14. I am neither a lawyer not a music industry executive. Instead I represent a consumer organization. As a result I do not feel qualified to answer the question of how to make back catalog or out of print music available (for example, I have no good insights as to how to obtain the required rights, etc). However, I can confidently make the statement that consumers flock to those services with the largest catalog. Make a large catalog available to consumers and have the music that consumers download behave like the music they buy at the store (i.e. it can be copied freely for personal use and portability) and consumers will flock to the site.

Written Responses of Jonathan Taplin to the Senate Judiciary Committee March 14 Hearing

To Chairman Leahy

1. I assume that any solution to the "Analog Hole" problem that did not conform to current law on Fair Use would never be adopted or would face massive consumer resistance (like Copy proof CD's)
2. Investors would probably not put their money into any program service until these issues were settled. Since the current technology is working and is gaining more acceptance by copyright holders, and government intervention would bring the whole business to a halt.
3. We are currently deploying Intertainer in Hong Kong, Korea, Singapore and Beijing. Any attempt to mandate a new US DRM standard would be resisted by those countries. The notion that the whole world would go along with a US mandated standard seems naive, especially given the international roots (Bern, Switzerland) of Internet Protocol and HTML.
4. The attempt by the music industry to sneak a "Freedom to Virus" provision into the Patriot Act seems to foreshadow many of the complications that would result in terms of Privacy implications from the copyright holders desire to have access to individual's hard drive. This cannot have any good outcome on the question of privacy and liability for erasing users private data from a remote terminal.
5. I believe that the industry will reach consensus because cooler heads in the content community will prevail over those seeking to impose legislation from the FCC or Commerce Department. I'm sure the FCC has no interest in picking a DRM standard.
6. Consumer interest in Broadband is being slowed by lack of quality of service. Consumers are reluctant to pay twice as much for Broadband Internet service that quite often slows down to 56 KBPS because of over subscription by network operators. Until the FCC or Congress mandates a "Truth in Advertising" standard of 750 KBPS minimum speed for a service called "High Speed" or "Broadband", the consumer adoption will be slow.
7. I believe that the majority of pirated movies that are currently being served on Morpheus and Kazaa that are in the "Pre-DVD" release window are actually stolen from Studio or post-production house vaults. It would seem to me that those security standards should be tightened. The version of "Lord Of The Rings" that Mr. Parsons showed at the hearing clearly was not captured by a home video camera in a theater. I'm not sure there is anything the government can do about these perfect un-encrypted copies stolen from the studios.
8. I am not briefed enough on the issue to answer this question.
9. I believe the original copyright legislation was meant to protect "Authors Rights". I would suggest that these right are already being abused as the copyright law is being applied more to protect the right of corporations that are forcing artists into "work for hire" contracts. Any further erosion of the original intention of the copyright act, where Congress cedes it's power would be problematic for the artists whose blood, sweat and tears give birth to creative work.

10. I believe that if an individual purchases a legitimate license to watch a given piece of content for a given time period, then that individual should have the right to move that content to the device of his or her choice.
11. In general, we are supporters of open standards like Internet Protocol, HTML and XML.
12. I believe the marketplace is working in terms of providing DRM standards that work. I believe that these technologies are continually improving because of the marketplace factor of competition. To eliminate that factor would be to stall innovation.
13. Clearly major progress has been made on the DRM front in the last 9 months. Further innovations will be introduced to the market this summer. There is no reason for government intervention at this time.
14. It would be very problematic in the international arena as stated in response #3.
15. I am not involved in the discussion of the "Analog Hole" and other DTV standards so I can't opine on this.
16. I believe the FCC is not properly staffed to create such a standard. The history of government TV standards is fraught with mistakes. The Japanese governments attempts to set a Hi Def TV standard in the 80's turned out to cost private companies hundreds of millions in lost revenues as they chose the wrong standard.
17. I do not believe that that there are any elements of DRM that are unconquerable at this time by the private sector.

Question of Senator Biden

The reason that more content is not available on legitimate encrypted sites like Intertainer is rather complex. On the one hand, most major film studios plan to go into the business of on-line distribution themselves through two joint ventures: Movielink and Movies.com. Therefore we believe they may be interested in slowing down the lead we have in the space. On the other hand some of the majors believe that by bringing the "window" in which films are released to the Video On Demand distributors like Intertainer, closer to that of the DVD release might lessen the piracy problem, giving legitimate content providers an opportunity to sell before the wide scale propagation of "ripped DVD's".

Questions of Senator Thurmond

1. I believe that once a consumer purchases any piece of digital media they should have the right to move it onto any of their own personal digital devices.
2. The market is currently developing many robust DRM technologies. The next step will be to have interoperability standards. It is my understanding that the MPEG group is working on those standards today.
3. I do not believe any Congressional intervention is needed at this time.
4. I believe that some of the more aggressive proposals for DRM standards would compromise the privacy rights of individuals. I would cite the music industry's "Freedom to Virus" amendment that was placed and then struck off the Patriot

Act as an example of the more aggressive proposal. Many of us find these ideas to be disturbing.

5. Many companies can provide competing DRM technologies that could be interoperable. From the point of view of thwarting hackers, the more competing DRM's the better as a single standard would provide a single point of attack for every Hacker.

Questions of Senator DeWine

1. We are exploring offering a download service. The only impediment would be studio permission.
2. As a small company we had to choose to develop for one browser at the beginning. Explorer had by far the most users so we developed for that. If Navigator gains market share, I am sure we will port it to that environment.

Questions of Senator Hatch

1. We absolutely agree that there is considerable demand for media rich content. With little or no marketing we have signed up 75,000 registered users in 12 weeks.
2. I would refer you to the answer I gave to Senator Biden's question above. Some of the studios have multiple agendas. Lack of supply drives prices for limited supply higher.
6. I would suggest that quickly releasing video content on-line at the same time it goes on to DVD would help attract users to legitimate distributors like Intertainer.
7. I believe that Interoperability is key. A common standard like XrML would be very important in advancing this.

STATEMENT OF SENATOR SAM BROWNBACK
COMMITTEE ON THE JUDICIARY
"COMPETITION, INNOVATION, AND PUBLIC POLICY IN THE DIGITAL AGE: IS THE MARKETPLACE WORKING TO PROTECT DIGITAL CREATIVE WORKS?"

March 14, 2002

Our society is transitioning from an analog to a digital world, characterized by bandwidth-intensive Internet applications and the broadband connections required to access them. This transition holds great promise for continued industry innovation and productiveness, as well as opening up a whole new world for consumer and community access to information, entertainment, education, and health care. The digital revolution and the emergence of broadband connectivity could be the single most important factor in the continued economic growth and development of our nation in the 21st century.

Today, the Committee seeks to review the role of copyright protection in this new digital environment. I am fortunate to sit on two Committees – Judiciary and Commerce – that have equally important roles to play in this transition.

The Judiciary Committee is charged with ensuring the rule of law – copyright law – is obeyed while the rights of consumers are protected. This will ensure digital content is widely available online, in turn helping to create demand for broadband connections needed to access such content. The Commerce Committee is charged with ensuring that consumers have access to a competitive choice in broadband supply – the infrastructure required to make broadband connections available to consumers.

Just one year ago, I found myself in the Commerce Committee urging broadcasters and consumer electronics companies to work harder to resolve their concerns over digital piracy in order to move the transition to digital television forward. I explained at that time that if they failed Congress would do it for both of them, and likely to their mutual dissatisfaction. Today, I find myself in the Judiciary Committee making similar statements, but also making it clear to everyone that copy protection is *not* the panacea of broadband deployment and acceptance. In my view, broadband demand and supply are symbiotic in nature, not an either/or proposition.

Content producers cannot be expected to make digital content widely available online if it will simply lead to a "perfect" form of piracy. At the same time, digital copy protection solutions must permit information technology and consumer electronics companies to innovate and create products consumers demand. In my view, federal regulation of these issues will simply ensure that technology is tied to those regulations. Innovation will be sapped. This does not benefit consumers, IT and consumer electronics companies, nor will it ultimately benefit content producers.

Rhetorically at least, most industry partners *seem* to agree on the need for balance

between copy protection and innovation. They seek an industry agreed-upon method for addressing copy protection. While it is dissappointing, given the rhetoric, that such an agreement has not been reached, I am willing to extend the benefit of the doubt a little longer.

- I encourage the witnesses here today to redouble their efforts to work on digital copy protection solutions – broadband demand -- to create a secure digital environment in which industry, consumers, and entire communities can benefit and thrive. Resolution of these issues can and should be a win-win scenario for all industries involved. The alternative *is* likely to be some form of legislation, and I seriously doubt any company involved in this process will be very satisfied with the result. The marketplace, not Congress, should find an answer.

- This is only part of the reason why the transition to digital seems to be stalling. At last count a mere 10% of the nation subscribes to broadband services. As we focus on broadband demand issues today, it is important that we recognize that digital content *is* available online. Through websites like Intertainer.com, consumers have access to bandwidth-intensive content online, yet they are not snapping up existing broadband connections in order to do so. This very clearly suggests that copy protection alone is hardly the panacea of broadband acceptance that some would like us to believe. Existing broadband connections still takes hours to download movies. Do any of us really believe that consumers will trade a trip to Blockbuster for the Internet when going to Blockbuster is quicker?

- Clearly broadband supply must evolve to fulfill its promise as an empowerment tool for industry, consumers and communities alike. This requires broadband connections that make telephone, multichannel video and video-on-demand, as well as data services possible simultaneously through one Internet connection. No consumer in the U.S. has access to such a broadband connection today.

- I will continue work to address the supply problem through broadband deregulation legislation that will spur competition, and create marketplace incentives not only for the deployment of broadband, but for the deployment of superior broadband connections compared to today's rudimentary services. I again urge you to resolve the content and demand side of this issue.

Testimony of Edward W. Felten
Associate Professor of Computer Science at Princeton University and Director of the Secure Internet Programming Laboratory

Submitted to:

The Senate Judiciary Committee Hearing on
"Competition, Innovation, and Public Policy in the Digital Age: Is the Marketplace Working to Protect Digital Creative Works?"

March 11, 2002

To the Distinguished Members of the Senate Judiciary Committee:

I am writing to express my concern about proposals for laws that mandate the inclusion of copy protection technologies in computer hardware and software. Most of the discussion of these proposals has focused on their effect on fair use and the rights of consumers, issues that deserve serious consideration. However, that is not my topic here. I write instead to raise another issue that is equally important but has received much less attention: the technical effect of the proposed legislation.

I write as an expert on computer security and copy protection technology. I am an Associate Professor of Computer Science at Princeton University, and Director of Princeton's Secure Internet Programming Laboratory. (I am currently on sabbatical leave at the Center for Internet and Society at Stanford Law School.) I have published more than fifty research papers and two books, and my research has been covered widely in the national press. In addition to my service on corporate advisory boards, I serve on the Information Science and Technology (ISAT) advisory board of the Defense Advanced Research Projects Agency. I am co-chair of an ISAT study on "Reconciling Security with Privacy," and am a member of the National Research Council's study group on "Fundamentals of Computer Science." I have also served as the primary computer science expert witness for the Department of Justice in the Microsoft antitrust case. I believe that the views I express here are mainstream ones among independent computer security experts.

The content industry, including the movie studios and the record companies, is afraid of copyright infringement on the Internet, and with good reason. Although there are disagreements about exactly what constitutes infringement, all serious participants in the debate agree that large-scale infringement, especially the unauthorized redistribution of copyrighted movies or music, is a serious problem that will require a serious effort to solve.

In their zeal to respond to this threat, the content industry proposes the creation of a

standard for copy protection, a standard that is intended to prevent the unauthorized copying of copyrighted works. The key word here is "intended," for clearly intentions are not enough. The standard must work – it must actually prevent would-be infringers from copying.

All indications are that it will not work. To date there is little if any scientific evidence to indicate that a technology of the sort envisioned by the content industry could actually prevent piracy. The consensus among independent experts, including me, is that strong copy protection (protection that a moderately skilled person expending moderate effort cannot break) simply is not possible on general-purpose computers such as PCs. A strong copy protection scheme for PCs is as implausible to many experts as a perpetual motion machine.

While copy protection might be workable in a world with "dumb" single-purpose media players like VCRs, it is fundamentally incompatible with "smart" general-purpose technologies such as PCs and the Internet. When I say that these technologies are "general-purpose," what I mean is that they are able to perform powerful operations on data, without needing to understand everything about that data. For example, the telephone system is a general-purpose technology, because it can carry a conversation between two faraway people, and it can do this without needing to understand what those people are talking about. The telephone is indispensable precisely because you can use it to talk about any topic whatsoever, and because it transmits faithfully every pause, inflection, and nuance in the speakers' voices; and it is feasible to build a flexible, inexpensive, and easy-to-use telephone system only because that system does not need to understand what it is transmitting.

The same is true of the Internet, and of the internals of a PC. These technologies are designed to transmit and process information in any form, thereby providing tremendous cultural and economic value to their users. And the speed, power, and low cost of the Internet and PCs are possible precisely because they are designed to operate without having to understand the content of the data they are handling.

The general-purpose nature of the PC and the Internet is what has made them such astonishing engines of creativity, because it allows them to be used for purposes that their creators did not envision. Alexander Graham Bell did not foresee the invention of answering machines or voice mail – but he did not have to, because his general-purpose invention could accommodate them. He did not foresee that vending machines would phone a supplier when they ran out of candy bars. The designers of the Internet did not foresee the World Wide Web; but because the Internet infrastructure was general-purpose, the Web could rely on it immediately and without difficulty. General-purpose technologies provide platforms for innovation that allow anyone, even the proverbial kid in a garage, the opportunity to develop the next "killer app."

Copy protection operates on the opposite theory, by requiring the technology to categorize and understand the data that it is handling. Because copy protection and general-purpose

computing and networking are fundamentally incompatible, attempts to add copy protection to general-purpose computers and networks are doomed to failure.

History supports this conclusion. To my knowledge, every copy protection scheme for general-purpose computers that has undergone serious public scrutiny has been found to be ineffective. For example, in the fall of 2000 the music industry, under the umbrella of the Secure Digital Music Initiative (SDMI), proposed a technological standard, based on watermarking, for copy protection of recorded music. When the SDMI challenged the public to analyze their technology, a team of independent researchers (including me) found that the technology could be defeated easily. The SDMI was wise to submit its technologies to public scrutiny, because this enabled the flaws in those technologies to be discovered and discussed before the technologies were widely deployed, thereby avoiding the high cost of investing in a doomed approach. The industry spent years of effort designing these technologies, but our small team of researchers was able to discredit the technologies thoroughly in less than three weeks. This was not because we were smarter than those technologies' designers, but simply because they were trying to do the impossible.

This general storyline has been repeated over and over through the years, as one PC copy protection technology after another has been abandoned after collapsing like a house of cards. The history of PC copy protection consists of cycles of overconfidence followed by disillusionment. Is the content industry overconfident about their current technology? They tell us that they will succeed, that their best people are working the problem. Others have said similar things in the past and have always turned out to be wrong.

Space does not permit me to categorize here the various approaches to PC copy protection, or to debunk them one by one. Many approaches are possible and might be proposed as a potential standard. My point is that whatever approach is proposed, there are fundamental difficulties, both theoretical and practical, that make PC copy protection very unlikely to work; and that in any case a proposed technology ought to undergo public scrutiny before anyone seeks to impose it on the entire information technology industry.

Of course, we cannot rule out the possibility that the advocates of PC copy protection, who have always been wrong in the past, will turn out to be right this time. Though unlikely, that is possible. But it is a mistake to blindly assume that they will turn out to be right, because having a broken standard is worse than having no standard at all.

Consider what will happen if a government-mandated protection measure turns out not to work. Such a measure would do many things: it would inconvenience honest consumers; it would raise the price of media players; it would lengthen product development cycles; it would impede the development of new and better standards. Everyone would suffer, except the pirates. The industry that devised the measure would look technically inept, and the government that mandated its use would look worse.

In an attempt to sweep all of this under the rug, the content industry has framed the issue

cleverly as one of standardization. This presupposes that there is a menu of workable technologies, and the only issue is which of them to choose. They want us to ask which technology is best. But we should instead ask another question: Are any of these technologies workable in the first place? If not, then a standard for copy protection is as premature as a standard for teleportation.

In light of these facts, it would be a serious mistake to rush ahead and mandate a standard technology before that technology has been shown to provide any real protection for copyrighted material on PCs. The burden of proof should be on the advocates of PC copy protection to show that this time is different, that this time PC copy protection will work, for once. If a proposed standard can stand up to public scrutiny, then and only then will it be time to consider mandating it. If we mandate an unproven technology, then we are failing to learn from the unsuccessful history of PC copy protection – and we are indeed doomed to repeat it.

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Senate Judiciary Committee
"Competition, Innovation, and Public Policy in the Digital Age: Is the Marketplace Working to Protect Digital Creative Works"
Statement of Gary J. Shapiro
Chairman
The Home Recording Rights Coalition
March 14, 2002

As Chairman of The Home Recording Rights Coalition and President and CEO of the Consumer Electronics Association, I appreciate this opportunity to offer our perspective on competition, innovation, and public policy as they pertain to digital creative works. Competition and innovation flow from the private sector. Ill-considered or overly broad legislation, which impairs the private sector's ability to compete and innovate, would strangle the silicon goose that has provided the entertainment industry with so many golden eggs. We therefore would encourage you to work with the private sector to develop solutions that protect the fair use rights of consumers and preserve technological innovation, while addressing legitimate and well-defined interests of copyright owners -- without the imposition of unrealistic government mandates or arbitrary deadlines.

More than 20 years ago, a U.S. Court of Appeals ruled that distribution to consumers of a video recording device had violated federal copyright law. Eighteen years ago, the Supreme Court reversed that decision by a five-to-four vote, and established the principle that consumers do not need content owner permission to use devices at home for private, noncommercial recording. Since then, new analog and digital audio and audiovisual consumer products have only enhanced the welfare of, and created opportunities for, the entertainment industry. Yet concerns over their use by consumers continue to arise.

The Home Recording Rights Coalition was founded on October 22, 1981, the day after the Betamax VCR was ruled illegal by the U.S. Court of Appeals for the Ninth Circuit. Over its twenty year history HRRC has brought manufacturers, retailers, consumer activists, electronic servicers, and consumers to Washington, to explain how these new products actually are used by consumers, and why any proposed mandated limits on such use should receive great care and scrutiny. HRRC continues to speak for and on behalf of this constituency.

HRRC was obliged to spend most of its first decade opposing unreasonable entertainment industry demands to enjoin the sale of, or impose heavy royalty taxes on, new consumer products and media. These issues were presented to the Congress on a fairly simple, binary basis -- was product X to be allowed into the hands of consumers? If so, was it to be taxed for the benefit of entertainment industry groups?[1]

Digital technology put more options on the table, as to both uses by consumers, and control by content providers. Networked digital distribution of content, within and outside the home, became a concern for content proprietors. Digital *control* of consumer devices and activities by content providers and distributors, through encoding of content, became an urgent concern of ours.

To try to avoid the overhang of litigation and uncertainty that the first VCR and the first Digital Audio Tape (DAT) recorder faced, HRRC in 1989 expressed willingness to discuss content industry concerns, as well as our own, with a view to possible joint recommendations to the Congress or regulatory bodies. In this respect we established certain principles for evaluating whether resort to government authority would be appropriate, and we adhere to them to this day.

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[1] Even today, extreme "royalty tax" proposals live on in Europe and in Canada, where a government panel has just proposed assessment of (C)*$21 per gigabyte* and *$1.23 per CD-RW* disc on classes of consumer products. *See*:http://CB-CDA.gc.ca/tariffs/proposed/c09032002-b.pdf.

How The HRRC Evaluates
Proposals For Regulatory
Or Legislative Initiatives

HRRC will consider supporting a regulatory or legislative mandate only if --

(1) the issue cannot be addressed effectively by private sector standards or licensing activity alone,

(2) the result promotes rather than hinders technical progress and legal certainty,

(3) the mandate is of a *known technology* and as narrow as possible, and

(4) the outcome protects *consumers' reasonable and customary expectations*.

HRRC Activity Re Legislative Approaches

The HRRC cooperated with the entertainment industry in drafting section 1201(k) of the Digital Millennium Copyright Act of 1998 (DMCA). This section -- the only part of the DMCA that provides for any mandate on product design -- takes a balanced approach. It recognizes the prevailing technology that may be used to limit analog home recording, but subjects any use of such technology by content owners to clear "encoding rules" that protect reasonable and customary consumer practices.

Starting in 1989, we worked with the recording industry on the legislation ultimately enacted as the Audio Home Recording Act of 1992. In 1992, we approached the motion picture industry to discuss their expressed concerns over emerging digital video formats. Beginning in 1993, at the written invitation of Senators Leahy and Hatch, we began negotiations with the Motion Picture Association and its members on a draft Digital Video Recording Act (DVRA), aimed at achieving some assurance for producers and a balanced outcome for consumers.

Drafting the DVRA took enormous time and effort. By the time full consensus was reached, in March of 1996, Information Technology products had also entered the "consumer electronics" sphere. Members of the IT industry had deep concerns over the potential imposition on their products of the technologies referenced in the DVRA, and over the scope of legislation that would be necessary to require adherence to such technologies. The DVRA was never introduced in the Congress. However, section 1201(k) of the DMCA -- which strikes a fair balance as to consumer use of analog VCRS, by expressly limiting the circumstances in which copy control technology can be used -- is based directly on the "encoding rules" worked out so laboriously in the draft DVRA.

Instead of giving up, we invited IT industry representatives to the table as well, and with the motion picture and recording industries formed the Copy Protection Technical Working Group (CPTWG), which has met 63 times -- about once a month -- on the West Coast ever since. HRRC, and CEA and its members, have been represented at every one of those meetings.

How The CPTWG Develops Proposals For Private Sector And Possible Legislative Reference

The CPTWG is an open, voluntary discussion group on technology that might potentially be proposed for use as required by license, regulation, or legislation. Anyone wishing to show up and make a technical presentation can do so without prior notice. CPTWG does not address the actual implementation of technologies, but it has performed jointly funded tests and comparisons for reference by those who might. Attached to this testimony as an Appendix is a time line showing the dates on which various technologies were presented in the DVRA and CPTWG discussions, were developed for license, regulation or legislation, and incorporated in products that came to market.

Early on, CPTWG "work" or "discussion" groups established a method:

(1) Problem is presented and a consensus developed on its definition;

(2) Technologies are identified or solicited

(3) Technologies are analyzed as to strengths and weaknesses in solving the problem; report created. Technical rules or principles for application of technologies may be developed or refined.

At this point, as CPTWG is not a standards or licensing body, the market takes over. Independent groups may offer licenses and report availability and progress at CPTWG. CPTWG also serves as a forum for presentation of independently developed ideas and approaches to copy protection issues. It is the only regular, open forum for inventors to present their ideas to all interested industry participants. Presentations that are not specifically part of CPTWG work programs often stimulate further developments through cooperative efforts.

A number of private sector licensing approaches that support new digital entertainment formats were first aired as CPTWG technical proposals:

- DVD video copy protection[2]
- Home network and digital transmission encryption and authentication[3]
- Video data hiding, or "watermarking"[4]

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[2] DVD Video copy protection was the first challenge addressed by CPTWG, with the initial problem outlined in May 1996, and a marketplace solution offered for products in less than six months. This system is now administered by a multi-industry trade association, the DVD Copy Control Association ("DVD CCA").

[3] Device-to-device protection of digital connections was addressed in October 1996 and culminated in the "5C" technology announced in February 1998 for use on connections using compressed forms of data. The High-Bandwidth Content Protection ("HDCP") was presented in October 1999 for use on "DVI" connections using uncompressed forms of data.

[4] Methods of hiding copy protection information in the content itself, through means that survive normal transformation of content from digital to analog and back to digital and other forms of processing that are expected in consumer usage, were initially studied by a Data Hiding study group formed in May 1997, with a report on the technologies examined issued in May 1998. The technologies examined typically involved what is called "watermarking." Further development of audiovisual and audio technologies has occurred in private sector licensing groups.

- Secure recording on discs[5]
- Protection against Internet redistribution

HRRC View As To Prior And Current
Motion Picture Industry Agendas

In recent weeks the motion picture industry has articulated a new, three-part agenda, elements of which could limit reasonable and customary consumer practices, impair the functioning of consumer devices, and stifle the development of new technology. HRRC also remains concerned that elements of an older regulatory and legislative agenda, though now disclaimed, have not yet been abandoned in standards and regulatory contexts, such as at the Federal Communications Commission.

Prior MPAA Agenda

HRRC has opposed prior motion picture industry attempts, via regulatory and legislative processes, to exert new control over consumers' reasonable and customary practices.

- In statements in the last Congress and earlier in this one, some studio representatives pursued plenary control over in-home recording. More recently, some studio heads have said that they are not concerned over in-home recording, so long as these recordings are not sent back out of the home over the Internet. However, more specific formulations have still referred to allowing the consumer to make only "a" (single) personal copy of a television broadcast.

- Through licenses and by regulation, industry representatives at one time sought the power to *turn off* for all purposes (including *viewing)* home interfaces that a studio may consider insecure, such as the widely used "component video analog output" on broadcast, cable, and satellite set-top boxes used today as the only connection to millions of HDTV

[5] CPTWG participants have developed multiple technologies as to this application, which carries forward the protected status of content that has been encrypted for transmission.

displays in consumer homes. Such control has been referred to as "selectable output control" and is part of a proposal called "Extended Copy Control Information" ("ex-CCI").

HRRC Position

HRRC has requested that the new MPAA and studio positions be communicated to the FCC, where a CableLabs license is pending that would impose such constraints, based explicitly on prior requests by MPAA and studios ("POD-Host Interface License Agreement," or *PHILA*, CS Docket 97-80). HRRC continues to urge the FCC to obtain and publish the latest draft PHILA license for public comment on these and other dynamic public policy issues pertaining to competitively available digital cable products.

New MPAA Agenda

The MPAA has now sketched out a new three-part agenda:

(1) ***Implement*** a system to prevent the redistribution to the Internet of free, terrestrial DTV (unencrypted) broadcasts. Products with an ATSC tuner, or receiving signals from one, would be required to respect a "flag" sent with the content. Home recording would not be impacted. FCC regulation and perhaps some legislation would be required.

(2) ***Enable*** a means to secure "component video analog outputs" in ways similar to means available for digital video interfaces. Consensus "watermark" coding would be read by downstream analog-to-digital converters able to handle DTV content; the converted digital video would have to be handled "securely" in the same manner as digital interfaces for the same content. Legislation would be required.

(3) ***Impose*** a burden on all CE and IT devices to participate in an undefined system to avoid playback of content pilfered from studio in-house channels and distributed by "peer-to-peer" (*p-to-p)* means over the Internet. This agenda leaves undefined the scope of the technical, regulatory, and legislative burden that consumers and industry would have to bear.

HRRC Position

(1) ***Internet redistribution of broadcast content.*** The Broadcast Protection Discussion Group of the CPTWG has set a March 31 deadline for finishing ongoing technical discussions. HRRC remains open to fair and reasonable implementation, through narrowly targeted regulation or legislation if necessary, with the understanding that ***no limitations on consumer home recording rights*** would be imposed.

(2) ***Addressing component analog video interfaces.*** HRRC believes these interfaces, on which millions of consumers already rely for DTV content, should not be subject to being turned off or degraded in resolution by movie studios, or by cable or satellite program distributors. HRRC has offered for several years to work with those seeking to address this "analog hole" issue, provided: [1] it is subject to *reasonable* ***"encoding rules"*** *as per DMCA Section 1201(k)*, to protect consumer practices, and [2] the technology involved represents a private sector ***consensus*** and can be applied to devices without damaging their performance.

(3) ***Undefined imposition on consumer electronics and computer devices.*** HRRC is unaware of any technical presentation defining or supporting this agenda, by MPAA or any member studio. ***Without knowing the precise objective, the means of implementation, or the necessary scope of regulation or legislation, HRRC cannot support this agenda.*** HRRC is skeptical that protection of pilfered content could be practicable, or fair to consumers, through a burden imposed on manufacturers of home reception or playback devices. But, if MPAA comes forward with a specific plan, HRRC will, as it has done in the past, review it amicably, collegially, and constructively, with reference to its principles as to balanced protection of innovation and consumer rights.

Why HRRC Opposes Control Over Consumer Home Recording Of Free Over The Air Broadcasts

Consumer expectations about free, over the air broadcasting are different from those as to premium content delivered by cable and satellite. Those who receive programming over cable or satellite have contractual relationships with their content distributors; the devices they use are specifically licensed to receive content Approximately 15% of the public, however, chooses to forego such contractual or license relationships, preferring to watch whatever they choose, plus the advertising, delivered via rooftop antennas or rabbit ears. Imposing a technical regime on free broadcasts would forever change this paradigm and experience. If those who want to equate free programming with paid programming had their way, these consumers would become involuntary licensees, subject to technological controls negotiated elsewhere.

Many consumers now have set-top boxes with built-in "personal video recorders," or PVRs, as well as VCRs. If a PVR copy counts as the consumer's one copy, however, he or she can never record it on a VCR, or play it back on another TV in the house. A program recorded for viewing by the children could only be viewed on the same TV on which a parent would otherwise watch Sunday sports. A program of local interest could not be shared with parents or grown children living in another community.

Licenses governing programs distributed over cable and satellite systems have complex and expensive ways to deal with such issues -- for example, allowing transfer of a copy from a PVR to a VCR, if the PVR copy is erased at the same time. Nor have such licenses imposed restraints on programs originating as free, over the air broadcasts, even when delivered to the home over cable or satellite. Imposing such complexities as to free, over the air programming would bring the government into a complex, changing, and expensive technical area, with consumers suffering the consequences.

HRRC is strongly opposed to any legislative (or regulatory) interference with consumers' rights to engage in in-home,

private, non-commercial recording of programming originating as free over the air broadcasts. We have urged others to disclaim any such objective precisely and on the record.

Why HRRC Opposes The Imposition
In FCC-Sanctioned Licenses Necessary
For Competitive Devices To Attach To
Cable TV Systems Of "Selectable Output Control"
Or "Extended Copy Control Information"
And Signal "Downresolution"

The technology that some studios supported at the FCC[6] would allow them, or cable or satellite operators, to exercise direct, remote control over all product-to-product connections in the home. Once given this power, a movie studio, or cable or satellite operator, could simply turn off any interface at will, effectively making the consumer home network a part of its own distribution system.

Today, there are two standard all-digital interfaces being readied for widespread use in the home. One, known as IEEE 1394, iLink, or "Firewire," provides a bi-directional means of connecting TVs, VCRs, and other standard consumer products within a home network. This connection allows home recording to be either supported or disabled. The other digital interface,

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[6] Ironically, the FCC today is in a position to enforce *anti-consumer* license provisions because of a provision passed by the Congress, in the 1996 Telecommunications Act, that was meant to be explicitly *pro-consumer*. Section 304 of the 1996 Telecommunications Act requires the FCC to assure in its regulations the competitive commercial availability of devices that attach directly to cable systems -- breaking the 50-year monopoly, based on their concerns over theft of service, that cable multi-system operators have enjoyed. To achieve competitive entry with a range of new devices, as occurred in telephone deregulation, the FCC oversaw a standards development process that would also protect the security of cable signals from unauthorized use. CableLabs, the research consortium of the cable industry, volunteered, and was chosen by the FCC, to set such standards. But as presently drafted these standards, and the "PHILA" license agreement that would extend from the cable industry to device manufacturers, pose another threat to consumer enjoyment of home devices, and represent yet another part of a motion picture industry agenda represented before you today. Remarkably, though it fulfills a congressional mandate under FCC regulation, the text of the proposed PHILA license is held secret under non-disclosure agreements required by the cable industry.

called "DVI," is a one-way, broader digital connection originally designed to hook personal computers to digital monitors. The DVI signal used in this interface is simply not recordable by any known consumer technology.

The "DTCP" license, referred to in the attached chronology, spells out when this technology may be used to block home recording of certain content, based on "encoding rules" that protect current consumer practices -- again, based on Section 1201(k) of the DMCA. There are no such encoding rules for DVI.

Each of these interfaces offers different advantages. Some consumer electronics companies envision home networks in which each interface connection would be available to consumers -- some TV receivers might be designed to rely on the "1394" inputs, some on DVI, some on both. Connections to digital VCRs, for example, would be made through the 1394 interface, meaning that copying would be controlled, but subject to balanced "encoding rules."

Mandated responses to "Extended Copy Control Information" coding, however, would allow commercial entities outside the home to remotely control, on a program by program basis, which one of these interfaces would be active in a home, and which would be switched off for all purposes. A studio, cable MSO, or satellite provider that did not want to permit *any* home recording on VCRs would simply turn off the "1394" interface, and the "encoding rule" protections for consumers, painfully negotiated over several years, would become irrelevant.

Even more disastrously for consumers, a consumer who had bought a state of the art HDTV receiver, with a copy-protected digital 1394 interface, would lose the signal from this interface for all purposes, including *viewing* the program. So even consumer high resolution *viewing*, on the newest frontline, digital products of the DTV transition, could be cut off at the discretion of the studio, cable, or satellite company.

Unfortunately, the damage to consumer living rooms from "selectable output control" would not stop even at the choice of digital interfaces. Neither of these digital interfaces is yet in general use. Most HDTV displays in the market today, and sold

over the last three years, rely on the same sort of broadband interface that is used to deliver signals from PCs to computer monitors. (In computer terminology it is called "RGB." Its consumer electronics cousin is component video, also known as "Y, Pb, Pr".) A duty in the "PHILA" license to respond to such "Extended Copy Control Information would mean that the DTV-quality, broadband signals to the pioneering Americans who have purchased these 2.5 million displays would simply be cut off and the screeen would go dark. (Only the standard analog, low-definition, signal would still be available.)

Representatives of the cable industry have said that these controls, and provisions giving content owners the power to remove 3/4 of the resolution from signals before they are transmitted over component video analog outputs, appear in the PHILA license only because the motion picture industry has requested them. HRRC has called on motion picture industry representatives to convey, directly to the cable industry, their recent statements that they no longer seek to impose selectable output control or Extended CCI, and to clarify its position as to signal downresolution.

Why HRRC Would Consider Supporting, At The Appropriate Time, Narrow and Balanced Measures To Assure That Component Video Analog Interfaces Remain Open And Enjoy Movie Industry Confidence

The preferred methods for dealing with reasonable content industry concerns have been private sector development of technologies, and private sector licensing as the prevailing means to apply such technologies. These should be subject to fair "encoding rules," protecting consumers from arbitrary impositions that interfere with their reasonable and customary expectations. Through licensing alone, however, it may not ultimately be possible to reach all the relevant devices in the market, or otherwise to provide the protection consumers need, e.g., through adequate encoding rules.

For example, HRRC is committed to maintaining the full consumer enjoyment of DTV displays, owned by millions of consumers, that rely on the "component analog" video interface.

We have asked the FCC, and we are asking the Congress, not to do or allow anything that would interfere with the right of consumers -- the pioneers in the DTV transition -- to use and enjoy these display devices. Those who seek the discretion to turn off or degrade the quality of this interface in set-top boxes (that would feed signals to these displays), however, cite their inability, using present technical and licensing tools, to provide any protection for high definition signals once they are allowed to pass over these interfaces. They argue that without such tools, there will be no means to prevent the future re-digitization of these signals for passage over the Internet. They would also need a means to enforce whatever copy control they may apply to licensed programs provided by cable or satellite conditional access -- e.g., pay per view, video on demand -- as allowed by reasonable "encoding rules."

It is essential that consumers who buy DTV and HDTV receivers not lose most, or even any, of the benefits of their bargain. Therefore, in HRRC's view, a balanced regime as to "component analog outputs," that is fair to consumers, is far preferable to the imposition of broader measures such as "selectable output control" or "downresolution." One such approach -- which at this stage would still need much private sector investigation and discussion -- would be an obligation only on narrowly and specifically defined, future analog-to-digital converters, to read and respond to so-called "watermark" technology that may emerge from a private sector consensus. Since private licenses cannot and should not reach every product, to enforce that obligation equitably some regulatory or legislative action may be necessary. We emphasize, however, that much needs to be done in the private sector first, before we can know whether the necessary preconditions as to fairness to consumers, and not hindering technology or commerce, can be met. We know there is particular concern on these points in the information technology industry, and we share it.

Why HRRC Cannot Endorse
Vague Proposals For A "Single, Standard
Secure Domain" Controlling All Consumer Use
Of Consumer Electronics And Information
Technology Products

In 63 CPTWG meetings, no technical proposal has ever been made on the subject of protecting content pilfered from motion picture studio distribution channels prior to digital encryption, or captured in a movie theater, perhaps in China or elsewhere overseas, via a hidden camcorder. Nor has HRRC, CEA, or, to our knowledge, any participating member ever received any such technical proposal from MPAA, its member companies, or anyone else.

Informal discussion by some studio representatives has referred to universally mandated requirements on all hardware and software capable of playing back audiovisual material. (These are referred to, based on their universally mandated nature, as "open" standards, as opposed to more particular methods offered on the open market -- but we doubt that this is what is meant when that term is used by others.) These representatives have also indicated that enforcement of such "standards" would require that common digital playback equipment, relied on by consumers in homes today, would no longer be able to play newly issued material and would become useless and outmoded -- whether the marketplace required this result or not.

Beyond the admitted stranding of tens or hundreds of millions of devices, and likely more difficult or expensive functioning of others, lie additional questions -- e.g., how can it be assured that personal or semiprofessional movies shot on the same consumer camcorders that are culprits in movie theaters can still be played in all homes and sent to relatives or colleagues over the Internet?

Perhaps there are answers to some of these concerns -- HRRC cannot tell until it sees a specific proposal in an open, private sector forum such as the CPTWG. Starting with a government or regulatory mandate, and *then* trying to figure out

the answers to such questions would seem neither wise nor prudent.

Legislative mandates should be used sparingly, where needed and where appropriately and narrowly tailored. Should the private sector conclude that legislation is necessary to advance the interests of consumers and of the affected industries, we would look forward to working with you to craft appropriate legislation.

March 12, 2002

SUMMARY TIMELINE OF PROGRESS BY MULTI-INDUSTRY WORKING GROUPS

1993-94 Two consumer electronics and two motion picture companies agree on "Copy Generation Management System" ("CGMS") for basic copy protection in consumer electronics devices.

1995 Consumer electronics and motion picture industry representatives discuss extending CGMS to computing devices, and draft legislation, known as "Digital Video Recording Act," that would mandate response to CGMS in relevant CE and computing devices.

March-April 1996 Information technology company representatives object to CGMS technical approach and draft DVRA legislative approach, but suggest pursuing alternative encryption-based solutions to protect digital video content.

May 1996 Representatives from consumer electronics, information technology and motion picture industries form a multi-industry forum, called the "Copy Protection Technical Working Group" or "CPTWG," to define and discuss technological methods for protecting motion pictures. Participation is open to any interested party, and typically more than 100 participants from these industries attend the CPTWG meetings. The group, to this day, continues to meet in Los Angeles approximately on a monthly basis. Scores of protection technologies have been presented by company representatives, and calls for proposals issued by CPTWG subgroups have stimulated the development of numerous protection technologies currently on the market or in process. The activities of these subgroups, and some of the technologies emerging from these processes, are described in brief below.

July 1996 Matsushita and Toshiba present to the CPTWG their Content Scramble System ("CSS") encryption system for Digital Versatile Discs ("DVDs").

October 1996 CPTWG forms a Digital Transmission subgroup to define and discuss technologies to perpetuate protection within the home for content delivered to the home in encrypted form. Co-chairs are appointed from CE and IT industries. Over the coming months, the group creates a list of requirements for a home network protection technology, issues a call for proposals for technologies that meet the requirements, and reviews nine (9) submitted proposals.

November 1996 With revisions based on comments received from CPTWG, CSS is incorporated into DVD players and DVD video discs, which then enter the market. DVD sales continue to increase to the point that DVD is recognized as the most successful new product in the history of consumer electronics.

May 1997 CPTWG forms a Data Hiding subgroup to define and discuss technologies that can carry invisible information (such as a "watermark") in video content to indicate that copy protection is to be applied by recording and playback devices. Co-chairs are named from motion picture, consumer electronics, and computer industries.

September 1997 The Data Hiding subgroup receives 11 technology proposals. Over the next few months, the group establishes plans to subject the technologies to testing for invisibility, reliability in operation, and robustness against intentional hacking and unintentional removal or obfuscation during typical consumer video uses. Further development for licensing groups came from amalgamation of proposals by IBM, NEC, Sony, Hitachi, and Pioneer; and Philips, Macrovision and Digimarc. A later Toshiba proposal submitted to the license group was also first presented at CPTWG.

November 1997 The Digital Transmission subgroup issues a report analyzing the nine (9) submitted technologies against the list of requirements.

February 1998 Five companies (Intel, Hitachi, Matsushita, Sony and Toshiba) present a proposal to CPTWG uniting elements of their proposals to the Digital Transmission group into a technology known as "Digital Transmission Content Protection" or "DTCP." Within a few months, the companies, commonly referred to as the "5C," submit draft licenses to motion picture and technology companies, and obtain export approval for DTCP.

May 1998 The Data Hiding subgroup issues its Interim Report analyzing the submitted technology proposals.

September 1998 The 5C issue the first licenses to manufacture devices using DTCP.

December 1998 The 4C Entity, LLC ("4C", a group founded by IBM, Intel, Matsushita, and Toshiba) issues a request for proposals to evaluate and select a watermark technology for use in an audio copy protection system. Six technologies are solicited, and five participate in the intensive testing and analysis project over the next several months.

February 1999 4C presents to the CPTWG technical proposals for two protection technologies: "Content Protection for Prerecorded Media" or "CPPM," which is an encryption technology for use on DVD Audio discs and "Content Protection for Recordable Media" or "CPRM," which is an encryption technology for use on recordable media of many types (including several types of DVD recordable media and various forms of "flash memory" media).

Spring 1999 DTCP-enabled semiconductors come to market.

July 1999 DVD CCA issues an Instruction to Bidders outlining a request for proposals for video watermaking technology, building on the Data Hiding subgroup analyses, and for licensing terms and conditions for use of such technology to supplement the CSS technology for DVD video discs.

August 1999 4C selects the Verance watermark technology for use as part of its content protection for audio (both CPPM for DVD Audio and other prerecorded audio content, and the audio version of CPRM). The multi-industry group, the Secure Digital Music Initiative, also selects Verance's technology for use in relation to its Phase I Portable Device Specification.

September 1999 DVD CCA presents report findings of its watermark testing project to the advisory committee. Concerns are raised that selection of either technology may be impeded by claims that elements of each proposed watermark technology may infringe patents held by other companies.

October 1999 Intel presents at CPTWG its High-bandwidth Digital Content Protection system ("HDCP") to protect uncompressed digital video content transmitted from personal computers or set-top boxes to video monitors.

January 2000 Due to the difficulties in resolving the patent issues, DVD CCA temporarily postpones further efforts to select a watermark for video content.

Fall 2000

- D-VHS high definition digital tape recorders come to market, with a proprietary encrypted recording system, and digital outputs protected by the 5C DTCP technology.
- Prerecorded DVD Audio discs and players with CPPM come to market.

December 13, 2000

- 5C, Warner Bros. and Sony Pictures execute a Memorandum of Understanding reflecting essential terms of a license agreement to use the DTCP technology to protect those studios' motion pictures.
- Motion picture companies state a request that 5C technology be extended to provide protection against up-loading digital terrrestrial broadcast content to the Internet.

December 15, 2000 CableLabs issues its POD-Host Interface License Agreement, requiring the use of DTCP on digital outputs of Open Cable set-top boxes.

Early 2001 DVD recorders with CPRM and DTCP come to market.

March 2001 DVD CCA announces at CPTWG that it is instituting a new process to obtain bids for watermark technology that can be used to indicate that protection against unauthorized copying or playback should be applied to content that has been protected using CSS. Expressions of interest are solicited from any interested technology provider, initiating a multi-step process.

July 2001 5C, Warner Bros. and Sony Pictures execute the first licenses for motion picture studios to protect their content using DTCP. In addition, first HDCP enabled displays come to market.

Fall 2001 High definition digital television receivers using DTCP come to market.

November 2001 DVD CCA receives bids and technical proposals from two parties interested in having their watermark technologies selected for use on CSS-encrypted discs.

November 2001 Intel, Hitachi, Matsushita, Sony and Toshiba present at CPTWG a technical proposal (based on concepts from Fox News Corp.) making reference to a "Broadcast Flag," developed by ATSC, to signal the desire to protect unencrypted digital terrestrial broadcasts against unauthorized redistribution outside the home or personal network (e.g., against uploading to the Internet). A Broadcast Protection Discussion Group is formed to evaluate the suitability of this technology, with participants from the consumer electronics, information technology, motion picture, broadcast, cable and satellite industries.

January - March 2002 The Broadcast Protection Discussion Group, now a CPTWG subgroup, convenes in person and by telephone conference, with the goal of completing its evaluation of the technical elements of the Broadcast Flag proposal by the end of March 2002. Co-chairs for the group are named from the consumer electronics, information technology and motion picture industries. A drafting committee proposes a "strawman" draft compliance and robustness requirements for devices that implement the Broadcast Flag. Alternative proposals are received. Separately, representatives from the relevant industries begin discussions of possible means by which to require implementation of technical proposals for broadcast protection.

December 2001-April 2002 DVD CCA testing and analysis process related to watermarking technologies submitted by the two bidding groups. Final action to select a technology expected by end of April, with action to be taken by the DVD CCA Board of Directors (consisting of 2 members each from motion picture, consumer electronics, and computer companies) based on advice from a multi-industry Content Protection Advisory Council (25 companies from the motion picture, consumer electronics, and computer industries).

If You Cannot Protect What You Own,
You Don't Own Anything!

A brief report concerning
the dark underside of Internet piracy
as well as the possibility of a
cleansing redemption to benefit
the American consumer

Presented to the
Senate Committee on the Judiciary

On behalf of the member companies of
THE MOTION PICTURE ASSOCIATION OF AMERICA

by

Jack Valenti
President and Chief Executive Officer

March 14, 2002
Washington, D.C.

This statement represents the collective views of Buena Vista Pictures Distribution, Inc. (Disney); Sony Pictures Entertainment Inc.; Metro-Goldwyn-Mayer Inc.; Paramount Pictures Corporation; Twentieth Century Fox Film Corporation; Universal City Studios, Inc.; and Warner Bros

This document sets forth the goals that the American movie industry urges the Congress to seriously examine. The future of these unique creative story-telling works is in danger of being shrunk and squandered by an increasing thievery on the Internet. We cannot stand mute and observe the slow undoing of a formidable American economic and creative asset.

The Economic Worth of the Copyright Industries

What kind of asset is at stake here and what does it mean to this country? The facts are these: The Copyright Industries (movies, TV programs, home video music, books and computer software) are America's greatest trade export prize. They are responsible for some five percent of the GDP of the nation. They gather in more international revenues than automobiles and auto parts, more than aircraft, more than agriculture. They are creating NEW jobs at three times the rate of the rest of the national economy. The movie industry alone has a SURPLUS balance of trade with every single country in the world. No other American enterprise can make that statement. And all this at a time when the country is bleeding from a $400 Billion trade DEFICIT.

Which is why we come to you with a clear statement of what is needed to preserve this extraordinary economic/creative engine of growth in a broadband world.

Broadband (high speed, large pipe entry to the Internet) is an OPPORTUNITY to make available to consumers

another delivery system for transporting visual entertainment to their homes. This means more freedom of choices for consumers.

As you may surmise, producers of visual entertainment are enthusiastic, ready and eager to offer their creative works on the Net. And to dispatch those works LEGALLY, at a fair and reasonable price to those American homes who choose to view them. It should be noted that 'fair and reasonable' will be defined by the consumer and no one else.

But there is an obstacle. Consider this: The cost of making and marketing movies, for example, has risen to nerve-shattering heights. In 2000, the total cost to the major studios for making and marketing their films was, on the average, an astounding $82 Million! Only two in ten films ever retrieve their total investment from U.S. theatrical exhibition. Those films must journey through various marketplace sequences: airlines, home video, satellite delivery, premium and basic cable, over the air TV stations and internationally. They must make that journey to try to break-even or ever make a profit.

Today as that movie travels its distribution compass course, it is exposed to great peril, especially in the digital environment. If that movie is ambushed early on in its travels, and then with a click of a mouse, and without authorization, sent hurtling at the speed of light to every nook and cranny of this planet, its value will be seriously demeaned. Who on earth would continue to invest huge sums of private risk capital when the chances of redeeming that investment become remote, if not impossible?

Broadband entices and allows piracy of films and TV programs on a massive, unprecedented scale. And at this precise moment, movies and other visual entertainment works are in ever-multiplying numbers swarming illegally throughout so-called file-sharing sites (a more accurate description would be "file-stealing" sites). And this is in an environment where most people's broadband connections are not fast enough to enable speedy downloads of these illegally copied files (funny how people will wait a long time for something when it is free!).

Thus, the problem will only get worse as the speed of broadband increases. University-based piracy provides especially troubling evidence of this phenomenon, because university ethernet systems are state-of-the-art, large pipe, highest speed broadband connections. These university systems are over-run and heavily burdened by student downloading of pirated movies and TV shows. It's easy. It's fast, and it's free. It is also illegal.

Gresham's Law works its will in such a landscape. Just as cheap money drives out good money, so we are afraid that pirated movies will spoil the market for broadband delivery of high-quality films with superior fidelity to sight, sound and color once these high-speed connections proliferate. A consulting firm has estimated that more than 350,000 movies are being illegitimately brought down EVERY DAY. Who would choose to pay for movies when you can have them delivered to you FREE? It is this infection which corrodes the future of creative works.

But if through technological measures, producers of visual entertainment could defeat the spread of pirated movies populating 'outlaw' Net sites, the Net would be cleared of illegal debris and able to hospitably welcome legitimate, superior quality entertainment in a user-friendly format. The Consumer Electronics and Information Technology industries have been working cooperatively with us to find methods to deliver our legitimate content in a more secure digital environment. The largest beneficiary of such an environment would be American consumers.

The THREE GOALS I outline below are designed to protect valuable creative works in visual entertainment, and at the same time expand the reach and attraction of broadband in the consumer society.

How to achieve these GOALS? First and foremost both the Senate Judiciary Committee and the Senate Commerce Committee must be involved because these goals are umbillically connected to the oversight jurisdiction of both Committees.

Our Three Goals, whose Objective it is to Protect movies, TV programs and other visual entertainment on the Net.

Goal One: to create a "broadcast flag" which would prevent broadcast programs exhibited on over the air TV stations from being re-distributed on the Net, which is a form of thievery.

Because just about all such TV creative material is in "deficit," (that is, its production costs are higher than the license fees it receives from the network) TV series and other high value broadcast material must go to 'syndication' when they leave the network. Syndication means those programs must be licensed to local and international TV stations in order to recoup their total investments, and hopefully make a profit. If such programs are re-distributed on the Net while they are still on the network, it shrinks and decays the earning power of that program in the syndication market. Discussions are now going on which could result in a mutually-agreed upon accord to construct a 'broadcast flag.' Praise is due all those Information Technology, Consumer Electronics, and Movie industry companies for these good faith discussions which I pray will end in a unanimous accord.

Action: To achieve this important goal will require congressional or agency action to implement the accord. In the absence of such an agreement, a narrow mandate may be necessary.

Goal Two: To "plug" the "analog hole."

This is technical jargon. Let me sort this out in plain English. All digital protection designs can only work in a

digital environment, which is the environment of the Internet. When a digital signal comes down to a TV set in the consumer home, that TV set in 95% or more of American homes is an "analog" set. This means the digital signal is immediately transformed into an analog signal in order for the consumer to watch it. If the analog signal is then converted back to digital, it cannot be protected by any known protection device. This is called "the analog hole." One way to 'plug the hole' could be through a 'watermark detector.' The 'watermark' is an ingenious design, which commands the signal converter in the TV set to respond to the instructions on the movie. This can be accomplished through a concord agreed to by the Information Technology, Consumer Electronics and Movie industries.

Action: To reach this goal, Congressional assistance will be necessary.

Goal Three: To stop the avalanche of movie theft on so-called 'file-sharing" Web sites, such as Morpheus, Gnutella, etc. (the more accurate name would be 'file-stealing' sites).

Unhappily, neither the 'broadcast flag' nor 'plugging the analog' hole will stop this relentless thievery that is endemic.

We have not hesitated to spend considerable resources to fight these sites and services in the courts. But litigation alone cannot possibly provide an adequate solution, particularly as these services become increasingly

decentralized, fragmented and anonymous. Constructive discussions need to take place with the Information Technology and Consumer Electronics industries to determine how best to develop effective technical solutions to crush online theft of our valuable creative works.

Action: Continuous negotiations must take place to develop technical solutions, which may require legislative enforcement.

There is one truth that sums up the urgency of this request to the Congress to enlist in the battle to preserve and protect an American economic and artistic asset which attracts the enjoyment, the patronage and a most hospitable reception by every creed, culture and country throughout the world.

That truth is: **If you cannot protect what you own, you don't own anything.**

STATEMENT OF HILARY ROSEN
PRESIDENT AND CEO
RECORDING INDUSTRY ASSOCIATION OF AMERICA
BEFORE THE
COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE

"IS THE MARKETPLACE WORKING TO PROTECT
DIGITAL CREATIVE WORKS?"

MARCH 14, 2002

Thank you for the opportunity to submit for the hearing record our views concerning the protection of digital creative works, and particularly digitally recorded music. We would also like to thank this Committee, under the leadership of Chairman Leahy and Senator Hatch, for its longstanding dedication to ensuring an appropriate level of protection for creative works.

As the Committee knows well, America's copyright industries have led the U.S. economy in contributions to job growth, gross domestic product and exports. Yet the recording industry is suffering – and other content industries may soon be imperiled – by rampant infringing distribution of our works through peer-to-peer systems, other pirate sites and ubiquitous CD ripping and burning technology. The solution lays in common standards enabling the implementation of collaborative technical solutions to stem piracy. Unfortunately, we fear that the marketplace may not be working to provide the incentives necessary for the development of such standards and to restore an appropriate level of effective protection for creative works. Accordingly, we are very interested in exploring with this Committee whether there is something that should be done to adjust the incentives that enable legitimate commerce in copyrighted works.

It is extremely important at the outset of my statement to respond to some of what I have heard from critics of this process. We are not interested in polarizing relationships with the technology industry. Our member companies are working with the technology industry everyday to develop these new businesses. And we absolutely know and appreciate that several of the tech companies have already spent millions of dollars and vast internal resources trying to find solutions to the problems being discussed today. We have always wanted these efforts at content protection to be of mutual benefit. That is the best way to achieve success.

The Marketplace Has Worked to Provide Legitimate Online Access to Recorded Music, But Infringing Services and CD Burning Threaten Legitimate Distribution Channels

For some time, people have been telling our companies to get their music online. Now we've done it. In addition to webcasters and other kinds of services that have

become common, there are now more than half a dozen licensed subscription services in operation, and more are in the works. It seems like hardly a week goes by without reading about another new licensing deal. The marketplace clearly has responded to the demand for digital music by spurring legitimate service offerings. These services have some limitations that the pirate services do not. The pirate services do not pay creators nor seek licenses. These new subscription services have few customers, because they cannot compete with the music available for free using peer-to-peer systems and other pirate sites. The legitimate online music market is unlikely to prosper until something is done about the wholesale piracy enabled by systems like KaZaA and others.

These infringing systems are fueled by music ripped from CDs, and music obtained through these infringing systems is burned onto CDs for physical distribution, with hardware and software products that have become standard equipment on personal computers. The twin threats of infringing services and ubiquitous ripping and burning technology have created a situation where, more and more, consumers obtain music through infringing downloads and CD burning rather than through legitimate channels.

These problems are real and growing. Peer-to-peer systems enable the illegal download of billions of music files *every month*. And, in a recent survey of active music consumers conducted for the RIAA by Peter Hart Research Associates, 23 percent of the music buyers we surveyed told us that they are buying less music because they're getting what they want for free by downloading and burning. In such an environment, perhaps it is not surprising that last year, record sales were down 10 percent.

The digital revolution holds the promise of exciting new services for consumers as well as economic opportunities for all the affected industries. Unfortunately, the level of piracy that digital technologies has enabled threatens our ability to develop new artists and produce new music and ultimately may result in fewer choices for American consumers. It certainly has had a significant, negative effect on artists, record companies and the thousands of other people who earn their livelihoods from the music industry, whether as performers, composers, distributors, wholesalers or retailers. Thus, we need to explore every avenue possible to protect our marketplace from piracy.

Technological Protection Measures Are Necessary to Inhibit Piracy and Promote Legitimate Commerce, But They Require the Cooperation of the Technology Industries

There *are* technical solutions to the online piracy problem that will facilitate the growth of a vibrant legitimate marketplace for online distribution of recorded music. Indeed, the adoption of technological protection measures that balance a music fan's interest in personal use with the piracy concerns of the music industry are our best hope to preserve the legitimate music marketplace that has served America so well.

There have been various suggestions of technological measures that, if implemented in the near term, might offer some useful degree of protection against

uncontrolled copying of content. Of course, CDs can be copy protected to inhibit ripping, and some record companies are looking at and testing such technologies. However, the mere protection of CDs alone cannot solve the online piracy problem, because uncontrolled ripping, burning and infringing online distribution are facilitated by computer products and consumer electronics devices that provide easy and open opportunities for digital piracy.

Moreover, the interests of everyone concerned – consumers, copyright owners and software and hardware manufacturers alike – would be best served by common technical standards that could be implemented in interoperable systems. Such standards would prevent consumers from being confused or aggravated by incompatible systems. Such standards would foster a legitimate marketplace for the distribution of copyright owners' works. And such standards would ensure that software and device manufacturers need only build certain technology into their products to provide access to works obtained through legitimate channels while helping control infringing distribution.

Thus, what is needed are common standards for collaborative technical solutions, in which technology on a disc or a download and technology in other software or hardware products work together. Such collaborative solutions could make a meaningful dent in online piracy. For example work could progress on perfecting how hardware and software devices treat copy protected CD's or downloads. We have always been willing to find the right technology balance between a music fan's personal use and still prevent a song from being sent to millions on the Internet. CD-Rom drive makers could be part of a productive solution. The analog circumvention issue has not been adequately studied for a solution either.

With the right kind of commitment, [voluntary] standards along these lines could be developed and implemented. We should emphasize that we have no desire to stifle innovation by technology companies or inhibit the legitimate use of new technologies to enjoy music. We embrace new technologies that allow us to create and distribute our works and reach consumers in new ways. Thus, we are eager to work with technology companies to formulate standards that will help end the bite of online piracy while at the same time facilitating the growth of a vibrant legitimate marketplace for online distribution of recorded music.

Infringing Services Have Eliminated the Incentives for Technology Companies to Protect Our Content to Further Their Own Business Interests

Since many have used the music industry as an example, we thought we would offer some history of some of the specific actions we took several years ago to try and address the issues. Obviously those efforts mostly failed and we are where we are. Hopefully, our experience is instructive.

We recognized long ago that all the participants in the digital music value chain, including not only creators and distributors of music but also the full range of technology companies, could benefit from common standards enabling the implementation of

collaborative technical solutions in interoperable systems. We tried to do something about this on a voluntary, multi-industry basis through the Secure Digital Music Initiative ("SDMI").

SDMI was a forum for diverse companies that can come together to better understand the others' perspectives, needs and desires in the hope that we could emerge with consensus security standards that would make everyone a winner. We organized SDMI to enable new business models for the legitimate distribution of recorded music while achieving technological protection against piracy. Technology companies participated in SDMI on the premise that they would be able to sell new products and services to enable consumers to get access to music online. In other contexts, such as DVD, these complementary goals of copyright owners and technology companies have led to standard-setting successes.

Unfortunately sometimes agreeing on standards for security and interoperability means choosing some winning technology and making sure there is cross licensing. That was inevitable in this case because a hardware or chip maker cannot be expected to include too many "readers" or decoders in their equipment to react to, and software manufacturers will only accept so many different DRM's. Content developers cannot imbed an unlimited amount of watermarks in their music or movies other content to react to multiple systems. So we tried, with great difficulty, to agree on some proprietary technology that would be interoperable.

Ultimately, SDMI stalled when technology companies discovered that, because of piracy, all recorded music was readily available online even in the absence of security standards. Given all of the proprietary interests of the tech industry, the only format everyone agreed to make their machines interoperable for was the unsecured mp3 format. Since every player and machine could read and play it, it became the *de facto* standard. In a world in which consumers could get for free all the music they could possibly want, there is no longer any incentive for technology companies to protect our content in order to serve their own business interests, because their products and ISP services are selling, even though those products and services are being used to acquire intellectual property illegally. If we could have kept working together, I know we would have done better at finding solutions. In sum, we just couldn't keep them at the table.

If the Government Can Help With Security Standards, We're Very Interested

Because of the effects of piracy on the incentives that have led to successful standard setting in other contexts, the marketplace presently does not appear to be working to protect digital music. And while we may be the first industry to suffer the ravages of online piracy, we won't be the last – unless something is done to encourage the kind of technical solutions that can actually deal with the problem.

The private sector should be given every reasonable opportunity to adopt appropriate technological solutions. And the government has already provided some

help, in the form of the anti-circumvention provisions of the Digital Millennium Copyright Act ("DMCA") and the notice and takedown mechanisms for ISPs. We are pleased at the renewed offer by many in the tech industry to seek compromise and resolution outside of government action. Obviously we would expect any such effort to include music's seat at the table. However, additional help may be needed, whether in the form of enhanced legal remedies, more active enforcement of the law, or legislation requiring implementation of technical standards to ensure that *all* technology companies provide the same level of needed protection. So, we are very interested in exploring with this Committee whether there is something that should be done in this regard. We appreciate your leadership in this area and stand ready, on behalf of the recording industry, to be a productive participant in this important process.

Thank you.

Statement of
Video Software Dealers Association

Hearing on "Competition, Innovation and Public Policy in the Digital Age: Is the Marketplace Working To Protect Digital Creative Works"

Committee on the Judiciary
United States Senate

March 14, 2002

The Video Software Dealers Association (VSDA), the international trade association representing the home video industry and video stores across the nation,[1] submits this statement for the record of the hearing on "Competition, Innovation and Public Policy in the Digital Age."

We respectfully suggest that the inquiry that is the focus of the hearing – whether the marketplace is working to protect digital creative works – is wide of the mark. The question that the Committee should be asking is: *whether the marketplace will be allowed to work to protect the rights of the owners of lawfully made copies of digital works*. We are concerned that it is not, as digital rights management constructs are being used not only to prevent piracy and to ensure payment for purchases, but also to circumvent constitutional and statutory limitations on the copyright monopoly.

For example, digital rights management systems can be used to:

1. Prevent a lawfully purchased, digitally delivered movie from being played more than a certain number of times, or from being played on any machine other than the first computer or player on which it is played (thereby preventing rentals, resales, lending, or gifts of previously played movies).
2. Delete or disable lawfully made copies of motion pictures residing on a computer hard drive or other storage system.
3. Prevent consumers from privately performing a work over a home network.

[1] Established in 1981, VSDA is a not-for-profit international trade association serving the $19 billion home entertainment industry. VSDA represents more than 1,700 companies throughout the United States, Canada, and a dozen other countries. Membership comprises the full spectrum of video retailers (both independents and large chains), as well as the home video divisions of major and independent motion picture studios, and other related businesses that constitute and support the home video entertainment industry.

4. Lock up material that is not copyrightable or is in the public domain.
5. Effectively expand the term of the copyright monopoly indefinitely.

This overreaching promises to undermine copyright law and the public policies it serves, suppress consumer choice and retail competition, and ultimately impede the development of online entertainment, to the detriment of consumers, retailers, and copyright owners.

Copyright Law and Home Video

Having built the world's first home distribution system for motion pictures on the strength of the first sale provision of the Copyright Act,[2] video retailers may have as much at stake in this discussion as any other market segment.

Copyright law provides the legal foundation that has facilitated the phenomenal growth of the home video industry over the past two decades. The copyright monopoly supplied motion picture copyright owners with the economic incentive to develop new markets for their motion pictures, which led first to the emergence of videocassettes, then digital versatile disks (DVDs), and most recently, Internet-based "video on demand." These innovations have enhanced the consumer's access to motion pictures and created a vibrant, competitive industry.

When videocassette recorders (VCRs) first emerged as a consumer electronics product in the late 1970s, few imagined how ubiquitous they would become in America's homes and how popular watching a prerecorded video of a motion picture would be. For an overwhelming majority of America's 250 million plus consumers, renting and buying prerecorded videocassettes and DVDs is an integral component of their entertainment options. More than 90% of the households in the U.S. own at least one VCR. And although the DVD is a relatively new format, it is projected that approximately 24 million U.S. households now own a DVD player. It is estimated that almost 3 billion videotapes and DVDs were rented in 2001. Approximately one-third of all video-equipped households rent a videotape or DVD weekly, while 50% rent at least once a month. More than 60% of video-equipped homes have a video library of some sort. The average videotape library contains 75 titles, while the average DVD collection contains 19 titles. Consumer spending on video rentals in 2001 was a record $8.42 billion. More than $10 billion was spent purchasing the most popular videotapes and DVDs in retail establishments.

Essential to the success of the home video industry is the first sale doctrine of copyright law, codified at 17 U.S.C. 109(a). By giving retailers the right to sell and rent lawfully made videos and video games without restriction by the copyright owner, the first sale provision benefits society by promoting retail competition and maximizing distribution of creative works.

Although the motion picture studios strenuously resisted the emergence of the VCR and the creation of the video rental industry, even going so far as petitioning Congress to eliminate the first sale doctrine for prerecorded videos of movies, the home video industry today is an enormously profitable enterprise for the studios. Total revenue to the studios from domestic

[2] 17 U.S.C. 109(a).

video sales and rentals totaled $10.7 billion in 2000. Over the past several years, revenue from home video has accounted for more than half of the studios' gross domestic film revenue.

Video retailing, while experiencing some of the consolidation and slowing of growth of a maturing industry, remains a vibrant competitive enterprise. There are 24,000 video rental specialty stores in the U.S. These stores include the major public chains such as Blockbuster, Hollywood Video, and Movie Gallery, and a significant number of independent retailers. It is estimated that more than 40% of video specialty stores currently are single-store operations. Another 4,000 non-specialists, primarily supermarkets and drugstores, also rent video as a regular part of their business, and numerous other retail outlets sell prerecorded videos.

Home video has flourished precisely because copyright owners could not control the home video rental and resale market. The freedom to rent and resell videos guaranteed by the first sale provision has provided consumers with access to a wide variety of affordable, quality entertainment from different sources, generated a tremendous revenue stream for the copyright owners, and created a thriving industry with a high level of competition.

The First Sale Doctrine

Copyright law maintains a careful balance between protecting the intellectual property of copyright owners and promoting the broad dissemination and enjoyment of protected works. The Constitution provides Congress with the authority to enact copyright laws "[t]o promote the Progress of Science and the useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[3] The intent of this provision is to encourage authors to create and to disseminate their works. Nevertheless, copyright law carefully limits the scope of the copyright monopoly. The copyright owner and the owner of a lawful copy of a copyrighted work each have distinct rights under the Copyright Act, and the rights of each must be respected.

One of the essential rights of an owner of a lawful copy is embodied in the first sale provision. Section 109(a) provides that, notwithstanding a copyright owner's distribution right, the owner of a particular copy lawfully made under U.S. copyright law "is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy." The first sale provision applies to "copies," including digital copies fixed in a tangible medium,[4] without regard to where or how they were made. Moreover, the Copyright Act also makes clear that the first sale doctrine need not involve a sale. Rather, the pivotal question is whether the person asserting the first sale doctrine right is the "owner" of a "lawfully made" copy. There is no requirement that the tangible medium of expression have been sold by the copyright owner.

Copies can be mass produced at a factory or singularly by the consumer at a home computer. The owner of a lawfully made copy or phonorecord may assert his or her first sale rights regardless of

[3] U.S. CONST., art. I, cl. 8.

[4] U.S. Copyright Office, "DMCA Section 104 Report," 78 (2001).

whether the copy was purchased or, after the purchase of a blank medium, "made" by exercising a license to make a copy.[5]

Thus, a person who lawfully makes a copy of a motion picture through a digital download at a retail location or at home is authorized, under Section 109(a), to sell it to the highest bidder, loan it, trade it, or give it away, and the copyright owner is powerless under the Copyright Act to prevent it. Video retailers would also be free to rent them for profit, just as is the practice today with audiovisual works recorded on videocassettes and DVDs.

Private Performances

The Copyright Act gives copyright owners the exclusive right to perform a work "publicly," but reserves to the public the right to perform privately copies they own.[6] Theater owners need a license to show a motion picture, but the person who sneaks into a theater without paying infringes no right of the copyright owner. Owners of lawful copies need licenses to play them in public for pay, but need no one's permission to play them at home for private enjoyment. In short, there is no copyright to control or in any way limit private performances.[7] To limit such performances is like preventing parents from reading books to their own children.

"Limited Downloads" and "Online Rentals"

Today, technological restraints have been fashioned to give copyright owners *de facto* control over the distribution and use of copyrighted works where *de jure* control has been denied to them. These restraints seek to disable the protections that copyright law provides to legal owners of lawfully made copies of copyrighted works – and expand the limited privileges granted to copyright owners by Congress in order to give them control over the lawful distribution and use of copyrighted materials, control Congress has expressly denied to them in the Copyright Act. They seek this control in order to impose a business model under which they can charge for repeated use or multiple users of copyrighted works.

Copyright owners have taken the position that they are free to control the distribution and use of digitally delivered copyrighted works by reclassifying the transfer of ownership of digitally delivered copies of copyright works as "limited downloads" or "online rentals." The

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[5] *See United States v. Sachs*, 801 F.2d 839, 842 (6th Cir. 1986); *see also United States v. Cohen*, 946 F.2d 430, 434 (6th Cir. 1991) ("This [first sale] doctrine recognizes that copyright law does not forbid an individual from renting or selling a copy of a copyrighted work which was lawfully obtained or lawfully manufactured by that individual"); M. Nimmer and D. Nimmer, Nimmer on Copyright § 8.12[B][3][c].

[6] Under 17 U.S.C. 101, "[t]o perform or display a work 'publicly' means – (1) to perform or display it at a place open to the public or at any place where a substantial number of persons outside or a normal circle of a family and its social acquaintances is gathered; or (2) to transmit or otherwise communicate a performance or display of the work to a place specified by clause (1) or to the public, by means of any device or process, whether the members of the public capable of receiving the performance or display receive it in the same place or in separate places and at the same time or at different times."

[7] *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 155 (1975).

classifications are imposed on the owners of lawfully made copies through digitial rights management constructs such as non-negotiable contracts and access control technology.

Non-negotiable contracts in the digital environment are most commonly presented as "click-thru end user license agreements." These contracts of adhesion typically incant that the download does not transfer ownership of the copy of the work and declare that there are restrictions on the length of time or number of times the purchaser can view or listen to the product, the ability to transfer ownership of the copy, and/or the number of devices on which the product may be played. The restrictions are enforced by "access control technologies" that automatically disable the copy after a certain amount of time or number of plays ("timing out") and/or prevent the copy from being played on any device other than the device on which it was downloaded ("tethering").

For example, a download from a soon-to-be-launched "video on demand" online delivery service for motion pictures reportedly will have to be watched within 30 days from the date of download and will be operable only for 24 hours after the first viewing, after which the movie will be rendered as inaccessible code. In addition, the download will be tethered to the computer on which it is downloaded. The video on demand service is a joint venture of copyright owners.

The limited download construct is designed to gain the revenue stream consumers might be willing to pay for access to public performances of these works, while at the same time enjoying the control and efficiencies (but not the limitations) of a single digital reproduction (the download). It is intended to turn every digital player into a pay-for-play video jukebox, where the consumers own the copies, but lose their federal right to privately perform them or transfer to others the physical medium on which they are lawfully recorded without permission from or further compensation to the copyright owner.

In fact, non-negotiable contracts and access control technology can be used to restrict the redistribution and use of a copyrighted work even after the copyright in the work has expired, effectively extending the copyright term in perpetuity.

Unfortunately, Section 1201 of the Digital Millennium Copyright Act, which prohibits circumvention of technological protection measures such as access control technologies, is being misinterpreted to apply even where the technological protection measure does more than just protect the copyright from infringement, but also furthers objectives unrelated to copyrights. Under this interpretation, which is contrary to Congress' intent,[8] technological protection measures cannot be circumvented so as to limit their effect to only lawful objectives.

Non-negotiable contracts and access control technology are being used not only to prevent piracy, but to restrict the legal rights of lawful owners to give away, sell, rent, and view the digital copies they own. Although technological measures may lawfully be used to prevent copyright infringement and to ensure payment for the reproduction, they should not be used to

[8] The anticircumvention provisions of the DMCA "[do] not apply to the subsequent actions of a person once he or she has obtained authorized access to a copy of the work ... even if such actions involve circumvention of additional forms of technological protection measures." H. Rpt. No. 105-551, Part 1, at 18 (1998).

permanently control the lawful distribution and use of copies once the legal right to do so has been exhausted.

Because the first sale provision furthers the important public policies of promoting competition and maximizing dissemination of copyrighted works, the rights it confers cannot be extinguished either by non-negotiable contracts or technological controls. To conclude otherwise would make the rights granted by the first sale doctrine merely contingent on the technological prowess or goodwill of copyright owners.

Antitrust Concerns

Non-negotiable end-user license agreements and access control technology can be abused to suppress retail competition, to the detriment of consumers and retailers. It must be understood that entertainment products are not fungible. A consumer that seeks to view "Moulin Rouge" will not be fully satisfied by substituting "The Fast And The Furious." Rather, for motion pictures, the retail competition occurs not between products, but between retailers, who compete on price, selection, terms, location, customer service, and other factors.

The proliferation of non-negotiable contracts and excessive access control technology will deprive consumers of the value and flexibility that they currently receive from packaged entertainment. It could eliminate retail competition and substitute uniform pricing and other uniform terms and conditions on the sale of movies, effectively extending the carefully delineated rights contained in sections 106 and 106A of the Copyright Act into wholesale controls over distribution to the ultimate consumer.

Such technologies are also capable of being used to obliterate the lawful secondary market for used entertainment. Consumers could then be prevented from loaning movies to a family member or friend, reselling them, donating them to charitable organizations, or even, according to some of the current business models, bequeathing them in their wills.

The U.S. Copyright Office recognized the anticompetitive potential of these technologies in its DMCA Section 104 Report to Congress. The Copyright Office noted that access control technologies that tether digital downloads to a single computer and non-negotiable "click-thru" contracts that attempt to override copyright law may negatively impact consumer choice and retail competition.[9]

[9] U.S. Copyright Office, "DMCA Section 104 Report," 75-76, 164 (2001). We do take issue, however, with the Copyright Office's conclusion that the problems raised by access control technologies and non-negotiable contracts are speculative, or premature, or beyond the scope of its report. The restrictions on retailers' rights to distribute and consumers' rights to transfer and use fully the products they lawfully purchase and download are not speculative and consideration of their impact is not premature, as evidenced by the video on demand joint venture referenced above. These issues also fall squarely within the Copyright Office's mandate from Congress. Yet the Copyright Office's report makes no mention of the video on demand joint venture, despite the fact that it was public knowledge that this service was being developed. The problems created by overly restrictive access control technology and non-negotiable contracts need to be addressed now, not at some indefinite time in the future. To fail to do so leaves to the designers of access controls the allocation of rights between consumers and copyright owners, a function that previously was the exclusive responsibility of Congress.

Competition in the distribution of copyrighted works is largely non-existent until the product passes to distributors and retailers. If video retailers cannot participate in the distribution of digitally downloaded movies, either as a lawful reseller or a rental outlet, the neighborhood video store will rapidly fade from the scene. They would be replaced by a small number of approved providers, to the exclusion of competing retail channels. Consumer choice and competition would be further eroded.

Criteria for Digital Rights Management

Retailers are firm believers in protecting copyrighted works from piracy. In fact, because the retail sector often feels the most immediate effects of piracy, it is not unusual for retailers to complain that copyright owners are too lax in enforcing their copyrights against pirates who compete directly with retailers. Despite the strong leadership of retailers in fighting piracy, they are unwilling to give carte blanche to copyright owners to control all distribution and uses of their works.

Claims that the digital sky is falling as a result of piracy need not lead to a wholesale shift in power to copyright owners. First, copyright owners need not take away public rights to protect their copyrights. For example, the technology to prevent a motion picture from being copied is different from the technology needed to "lock" a legal copy 24 hours after its first use. In addition, the Supreme Court has admonished that the rights of the public as against copyright owners are just as important, under the Constitutional framework, as the rights of copyright owners against the public.[10]

Accordingly, there should be two criteria for security standards:

1. **The degree of security against copyright infringement.** As a practical matter, the only rights at issue here are the rights of reproduction (Section 106(1)) and public performance (Sections 106(4) and (6)).
2. **The degree of accountability for lawful reproductions and public performances.** That is, the extent to which the technology can assure that the copyright owner is being compensated for the number of reproductions or public performances actually licensed and made.

Conclusion

Copyright law is a balance between the protection of intellectual creations and the promotion of broad public dissemination of these creations in a manner that benefits society as a whole. Congress must ensure the proper balance is maintained between the rights of copyright owners

[10] *See, e.g., Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 527 (1994) (because of the social value of increased public exposure to a musical work, "a successful defense of a copyright infringement action may further the policies of the Copyright Act every bit as much as a successful prosecution of an infringement claim by the holder of a copyright").

on the one side and consumers and retailers on the other so that lawful digital distribution can move forward.

Security technologies that protect true intellectual property rights from infringement are commendable. Video retailers have long supported Macrovision encryption of analog copies of motion pictures and the CSS system of protecting DVD copies of motion pictures from unauthorized reproduction. Such systems derive their legitimacy from the fact that they only protect the right of reproduction from infringement.

However, VSDA is deeply concerned about the overreaching that is part of some technological controls for online entertainment. For the first time in history, copyright owners have the power to control mass distribution of their works (at least those in digital form) from the point of manufacture all the way to the end consumer and beyond. They are now able to distribute copies to millions of people in a matter of a few minutes, simultaneously distributing at the wholesale and the retail level. At the same time, digital technology gives copyright owners the unprecedented power to control and suppress the lawful use, resale, and rental of digitally delivered entertainment.

The issue is indeed quite simple. Copyright owners do not have a right of private performance, so they should not be permitted to force consumers to pay for private performances. Owners of copyrights in audiovisual works do not have a rental right, so they should not be permitted to prevent rentals. No copyright owner has the right to control redistribution of lawfully made copies, whether made in a factory, in a retail store, or at home, so they should not be permitted to use technology to prevent redistribution, nor to charge the new owner or renter a fee for access.

Video retailers see tremendous possibilities in digital distribution and want to see this market grow. They do not fear a free market, and believe that copyright owners should not be able to expand the limited privileges granted to them under the Copyright Act to lock out or limit retail competition. They ask only for the opportunity to compete fairly for consumers in the digital marketplace. They disagree with the notion that any single participant in the marketplace should be allowed to dictate the winners and losers.

While it can be argued that, ultimately, business models that rely on consumer-unfriendly technology will fail, in the interim some retailers may be driven out of business and the development of the market for digital delivery will be severely impeded.

Therefore, public policies for digitally delivered copyrighted works must: (1) maintain the balance of rights and limitations of copyright; (2) promote competition for consumer allegiance; (3) protect consumer rights; and (4) stimulate creativity. Such policies are necessary to facilitate artistic, business, and technological innovation that benefits society, enhances the quality of life, and fuels economic growth.